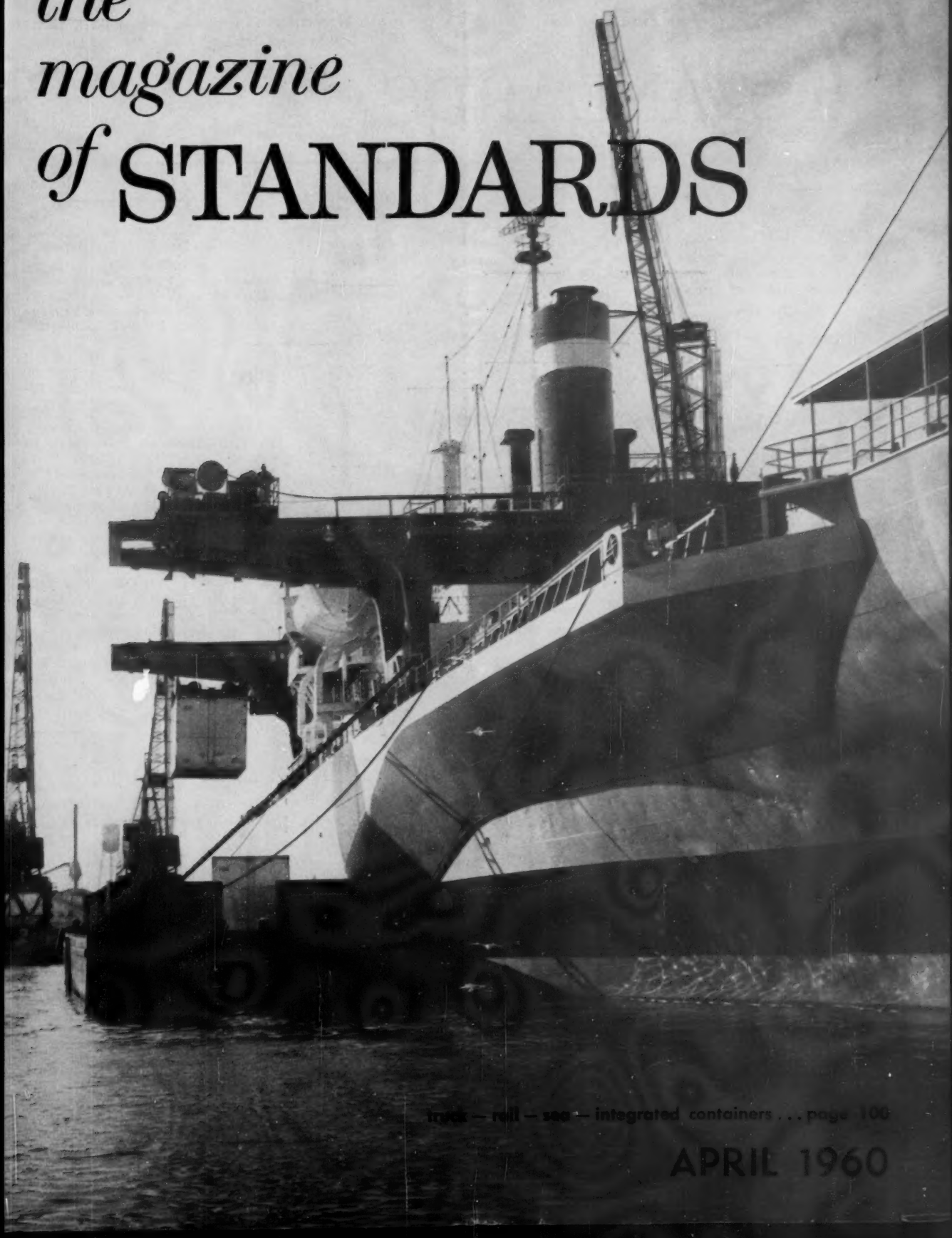
the magazine of STANDARDS



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APRIL 1960

the magazine of STANDARDS

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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Truck–Rail–Sea–Integrated Containers. *By Fred Muller, Jr* 100

For the first time, those concerned with shipping and material handling are cooperating to develop integrated sizes of shipping containers. ASA Sectional Committee MH5 is making progress toward a modular series of standardized freight containers to provide maximum interchange between rail, highway, and marine carriers.

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Opinions expressed by authors in THE MAGAZINE OF STANDARDS are not necessarily those of the American Standards Association.

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Ruth E. Mason, *Editor*
Margaret Lovely, *Art and Production Editor*

ASA

THE COVER: Although container ships have been used in coastal trade, the Grace Line's *Santa Eliana* is the first all-container ship in U.S. overseas trade. Cargo, packed in specially designed containers (called "Seatainers" by Grace Line) is loaded by gantry cranes into cellular holds, each capable of carrying from one to five "Seatainers." An article on developments toward standardized containers begins on page 100.

notes

• Have you planned to attend the ASA-Company Member Conference Spring Meeting—Sheraton Hotel, Philadelphia, May 2 and 3? In addition to papers and discussions on subjects of direct interest to company standards, engineers, an extensive collection of company standards will be on display throughout the conference. More than 20 concerns will show examples of their standards. Models, drawings, flow charts, and standards will make this the largest and most valuable exhibit of its kind ever attempted.

Conference registration starts at 8:30 Monday morning, May 2—registration fee $3.00. Luncheon with the group will be $3.85 for each day. Total cost of registration and both luncheons, $10.00.

The Monday morning program includes a paper on new developments in precision measurement and a panel on reducing varieties.

Safety and fire prevention, and a panel on industry's stake in military drafting practice, will be the afternoon feature.

On Tuesday morning a panel will present problems that must be handled by company standards engineers. Those present will then meet in workshop sessions.

Tours to the Philadelphia Mint, Franklin Institute, du Pont Paint Plant, and du Pont Paint Laboratory are being arranged.

Write the American Standards Association for program and registration blank.

• That gobbledygook word "containerization" (see article page 100), is fast becoming the accepted term for an effectively simplified and less costly method of handling freight shipments. According to L. E. Galaspie, president of the Associated Traffic Clubs of America, and director of traffic for Reynolds Metals Company, containerization saves time and labor, permits lower initial investment in transportation equipment, and speeds freight terminal operations.

This Month's Standards Personality

Edward R. Granniss

A CAREER DEVOTED TO THE PREVENTION of industrial accidents has brought Edward R. Granniss wide recognition.

His first job following graduation as a mechanical engineer started Mr Granniss in safety work, in the Engineering and Inspection Division of the Travelers Insurance Company. Ten years later, he entered a broader field as the director of the Industrial Engineering Division, Association of Casualty & Surety Companies.

While working with ACSC, Mr Granniss also taught as instructor of the faculty of New York University, and helped to organize the National Bureau for Industrial Protection in Washington, D.C. Serving as associate manager of the Bureau, he directed the cooperative accident prevention effort of all American casualty and boiler and machinery insurance companies with the War Department and other governmental agencies.

Early in World War II, Mr Granniss became chief of the Safety and Health Branch of the Army, with responsibility for the worldwide Army safety program, and with the rank of colonel. His work brought him the Legion of Merit for "facilitating a major conservation of manpower and war materials."

Colonel Granniss returned to his former position with the Association of Casualty & Surety Companies, New York, after leaving the Army in 1946. Later that year, however, he became manager of the Engineering and Loss Prevention Department of the Royal-Liverpool Insurance Group, his present position.

His activities in the insurance field led Mr Granniss to the national safety program. He is a past president of the Washington Safety Society, and a member of the Executive Committee of the American Society of Safety Engineers. He is also a past chairman of the Safety Section of the American Society of Mechanical Engineers. In addition to membership on a number of ASA sectional committees working on safety standards, he has served as vice-chairman and as chairman of ASA's Safety Standards Board. He has represented ACSC on the Standards Council since 1952.

Very recently, Mr Granniss, who is chairman of the Industrial Advisory Committee of the National Society for the Prevention of Blindness, was elected a member of the Society's Board. He is also a member of the Casualty Council of Underwriters' Laboratories and of the Industrial Conference of the National Safety Council.

Author of articles, pamphlets and booklets on health and safety, Mr Granniss is co-author of *Industrial Accident Prevention*, today's leading textbook on safety.

His personal life is much too normal to be interesting, Mr Granniss says, and as for hobbies, he comments, his "small efforts on behalf of the American Standards Association could never be considered work."

Containerized cargo handling is exemplified by this truck-to-ship operation. Here, a trailer-container is being loaded by gantry crane into the hold of a container ship. Within four minutes the trailer will be replaced by an incoming container and the next truck will move into place. (Courtesy, Sea-Land Service, Inc.)

Truck — Rail — Sea — Integrated Containers

by FRED MULLER, JR

Containerization, based on standards, will make possible huge savings in material handling

"SUPPOSE A RAILWAY were brought to the wharves at Bishops Gate Street, all the wagons to be made of one form and size, each capable of containing one ton of sugar or other goods of similar gravity. Let the body of these wagons be put on a frame that rests upon the two axles of the four wheels calculated to move only upon the railroad and let each of these wagons be loaded with goods which are to go to the same warehouse or its vicinity. The whole of the wagons being loaded, they are moved forward until they come to the end of the road at which place they should be made to pass under a crane. The crane would lift the wagons upon another truck formed for street use and when emptied to its point of departure."

Dr James Anderson, an Englishman, wrote these words in 1801. He was promoting the unit load, standardized demountable type of containers, integration of marine, rail, and highway transportation, terminal use of overhead cranes, door-to-door or load-center operation, all of which are very modern methods.

There has never been a reliable explanation as to why containerization movements of the past did not succeed, although several capable authorities have expressed the opinion that the fault lay in the economics of the operation, influenced by unfavorable tariffs and lack of complete interchange between carriers.

"Piggyback," so widely used today, came to the fore beginning approximately in 1847. However, at that time the attempts to develop it were sporadic and scattered for much the same reasons as indicated above. Today, however, we are witnessing a revival of both TOFC (trailer on flat car) and container types of coordinated, integrated transportation, characterized by cooperation among carriers, with the ultimate goal of cutting the costs of transportation of goods.

THE ultimate in containerization will be realized when a container load of freight is shipped from any point inland of the United States to any point in the world without physical re-handling of contents between point of shipment and delivery.

When a shipment can move through various kinds of carriers without breaking bulk as it goes from rail to truck or from truck to ship, savings in handling charges will be major.

Among the savings resulting from acceptance of piggyback or containerization are the economies of the unit load or consolidation of small loads which can be accomplished through the use of containers, elimination of a great deal of paperwork, almost entire elimination of pilferage, lower damage claims, expedited door-to-door delivery and pickup, and elimination of multiple handling of cargo.

Throughout history, the introduction of any new form of transportation has inevitably created new problems, misunderstandings, and controversies in transportation matters. The present revival of containerization is no exception. Generally, the representatives of the various carriers and shippers are in agreement on the essential methods of operation for utilizing containers, but are "bogged down" by the so-called minor details, such as handling arrangements, indexing, tie-down systems, and other related items which in the end will determine the degree of integration that can be achieved. Beyond the indicated efficiencies and economies which containerization offers, the greatest point in its favor at this time lies in the fact that it could become the common denominator between the many different operators of transportation media, and in this way could accomplish something which has never been done heretofore.

MR MULLER, secretary of Sectional Committee MH5, Sizes of Shipping Containers, presented the paper from which this article is adapted at the Fifth Annual Joint Military-Industry Packaging and Materials Handling Symposium, February 10, 1960. At that time Mr Muller was product manager, Cargo Unit, American Car and Foundry Company. He has since joined the consulting firm of A. D. Little, New York City.

WHAT would be required of a container system integrated into all modes of transportation? First and foremost, the size of the container used must be compatible with cargoes handled and its capacity must be attractive to both the shipper and the carrier. Its configuration must also be readily acceptable on the highway, on the railroad, in the ship, and in the air. The container should be capable of performing the same door-to-door delivery, or shipper-to-consignee type of operation which is presently being accomplished by the motor truck. The container must have compatibility with an underframe or flat bed so that it can be moved on the highway as a trailer, or placed aboard a flatcar for rail transportation, or on the deck of a ship, or in the square of the hatch of a ship. The capacity of the container should be such as to carry a highway load which is attractive to the shipper and the motor common carrier and, in combination with other containers, make a load which is attractive to the railroad.

Since the unit will be transported over the highways and railroads, it must conform to the safety rules and regulations of each and it naturally will be subject to the limitations imposed by the most restrictive type of operation.

The container must be simple in nature and complex enough to accomplish its assigned purpose, namely, to carry freight by one transportation means or another without imposing major penalty to any.

The use of containers in the air cargo function is handicapped, at the present time, due to the type of aircraft available to the air cargo operators, inasmuch as the planes used presently are of the side door type with a limited cruising range and capacity. Containers would impose a penalty in the form of tare weight and cube utilization which would seriously affect the revenue-generating capability.

However, with the advent of the high-capacity, long-range, tail-loading type cargo plane, some of which are on order, many of which are in use in the military airlift programs, containerization will become not only feasible, but desirable.

The air cargo operators will then be able to avail themselves more readily of the large container efficiencies and economies which appear at the present time to be reserved mainly for rail, marine, and highway operations. However, much can and is being done to increase the over-all effectiveness of air cargo movements by means of the selection of optimum pallet sizes for consolidation and unit load operations.

In order to achieve complete integration and coordination of transportation by use of container-type systems, it is necessary and mandatory that standardization of the various pieces of equipment involved

in the system be obtained. Standardization is of prime importance to the success of containerization. This fact was pointed out in 1933 by the Interstate Commerce Commission in the famous Eastman Report.

A statement made in the Eastman Report in 1933 regarding standardization is apropos today: "We take this occasion, however, to point out to the carriers the absolute necessity for uniformity in container equipment and the urgent desirability of obtaining such uniformity before the present lack of it spreads to serious proportions and threatens to neutralize to a considerable extent the economic benefits inherent in the container."

IN December of 1957, a group representing many and varied interests met in New York City for the purpose of exploring the necessity and timeliness of proposing a national set of standards for freight containers. It was the unanimous opinion of the group that a program, national in scope, should be instituted, which should have as its goal the determination of means by which containers could be integrated into all transportation media with maximum optimum interchange.

Subsequent to this meeting, The American Society of Mechanical Engineers and the American Material Handling Society jointly petitioned the American Standards Association to establish the format through which the desired results could be obtained.

The American Standards Association, recognizing the need and worth of the request, organized the MH5 project in July of 1958.

The objective of the ASA MH5 standardization project is the development of a fully integrated series of standard freight containers with universal interchangeability between the various carriers.

The study of this problem has been assigned to four working subcommittees[1] and related task forces who are considering separately the specialized problems of pallet containers, cargo containers, demountable van containers, and the international coordination of domestic and foreign container implementation.

The membership of these working subcommittees, and their task forces, is made up of outstanding specialists in the operational and engineering phases of distribution in the marine, railroad, highway, and air branches of transportation.

In all the committee compositions, recognition is given to the needs of the military logistical program in the event of national emergency.

Cognizance has been given to the fact that the military must have at their disposal an adequate, usable reservoir of transportation equipment which has the capability of supporting their logistical requirements not only domestically but also in any offshore theatre of operation. In order to determine the frame of reference, or base, upon which to develop compatible, acceptable standards, cognizance must be given to the restrictive design criteria of the various modes of transportation, especially with regard to the methods of handling, methods of tie-down, and the systems of interchange between carriers. Briefly and basically, and with regard only to the rail, marine, and highway type of demountable van or containerized movements, the following are some of the major points which dictate certain criteria from a dimensional, design, and functional standpoint.

In the marine operation the most accepted method of handling or of design of a container ship is the vertical cell type. It is therefore necessary that containers be designed so that they can be stacked six high or in any height module required. In order that the side walls of the container can be made as light as possible, consistent with highway requirements, loading is taken on the container corner posts rather than distributed through the sides and roof top. The containers for the marine operation must also be designed to withstand roll and pitch.

From a highway standpoint, the demountable van containers must be designed so that the tare weight will not impose a penalty on the highway operator, inasmuch as highway restrictions on gross load will materially decrease revenue capacities. The peak effect of gravity is generally experienced in the highway operation when the truck's brakes are applied in an emergency. The structural load criteria so far as highway operation is concerned are well within the limits imposed by rail or marine. Further, for highway operation, the width is the limiting factor inasmuch as most states permit a maximum of 8 feet. The height is dictated by a 12 ft 6 in. over-all practical height, which almost automatically indicates that the container cannot exceed 8 feet in height. Therefore, the end dimensions of a container (8 ft x 8 ft) are well defined by highway restrictions and practical operating considerations.

From a railroad standpoint, the maximum effects of gravity encountered are caused by impact during coupling, side loading due to super-elevation of track, and centrifugal force to which loads are subjected in going through curves at high speeds.

The general dimensional design criteria, from a load and size standpoint, can then be fairly well defined in terms of rail, marine, and highway requirements. It can be seen from the foregoing that maximum end and side load conditions are incurred

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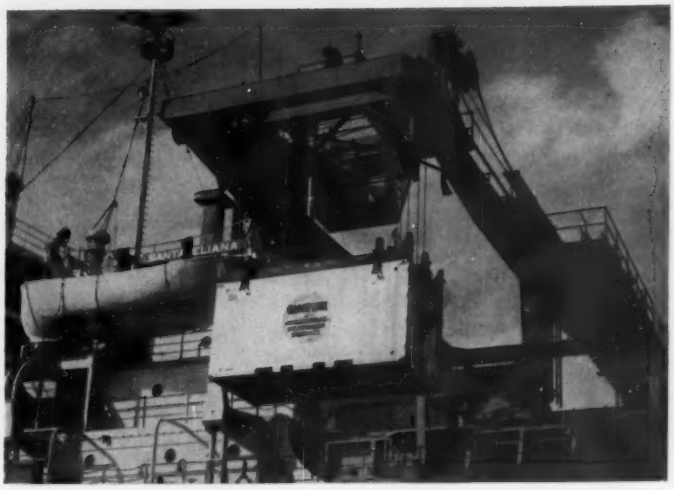
[1] MH5 subcommittees, and their chairmen, are: Small Containers, W. E. Willey, U.S. Post Office Department; Cargo Containers, Chester J. Heinrich, U.S. Naval Supply Research and Development Facility; Van Containers, J. J. Clutz, Pennsylvania Railroad, and John Gilbreth, Grace Line, co-chairmen; International Cooperation, J. R. Immer, International Container Bureau.

Herbert H. Hall, consultant, Pittsburgh, Pa., is chairman of Sectional Committee MH5, which is sponsored by The American Society of Mechanical Engineers and the American Material Handling Society.



Container designed for either truck or rail transport being loaded aboard a freighter specially built for the containers. (Courtesy, Grace SS Lines Seatainer Service.)

in the railway movement, marine side loads are approximately equivalent to railroad side loads, and highway loads are minimum. The shape of the corner posts of the containers is dictated by the stacking arrangement in the vertical cells of a ship and the length and end dimensions of a container are fairly well established by the highway restrictions. Tare of the container is limited by good practice and efficiency for highway movement. Weight in itself has little bearing on the railroad operation except that it would increase the gross ton mileage generated and costs thereof. In a ship, maximum cube utilization is of the utmost importance, inasmuch as any container ship is already penalized by the structure necessary to contain the demountable van and any additional cube loss would interfere with efficiencies of the operation. The maximum length of a container has been related to an increasing trend to the 85-ft flatcar used in the trailer-on-flatcar movement which is rapidly becoming standard in the coordinated or integrated transportation field. The maximum length of the demountable van container follows the larger trailer lengths, which are in the order of 40 ft.

During the early standardization efforts of the ASA MH5 committee, it was made evident that one size of container could not conceivably provide the maximum efficiencies or answer the needs of all the shippers or carriers involved in the transportation act. Further, it was realized that a simple way to please everyone and to accomplish little way to develop standard sizes of containers on an incremental basis of one foot, allowing for a series of container sizes with a one-foot module.

The major area of interest and concentrated effort on the part of the ASA MH5 committee has been the development of a basic modular series of standardized freight containers for maximum interchange between the rail, highway, and marine carriers, incorporating the proviso that other compatible container series could be developed to complement the basic system.

There have been many problems regarding container standardization which have appeared to be insurmountable. However, the carriers and the shippers have unanimously agreed on the 20-ft and 40-ft lengths with the 10-ft module and the 30-ft intermediate size. There has also been unanimity in agreement on the end dimensions of 8 ft x 8 ft. Therefore, recently a letter ballot was prepared and circulated to the sectional committee, made up of various interested and affected groups and agencies throughout the country, for an expression of their approval or disapproval of the standard sizes (10 ft, 20 ft, 30 ft, and 40 ft lengths with an 8 ft x 8 ft cross section) of demountable van containers recommended. The series of container sizes recommended was arrived at after an exhaustive and comprehensive study and evaluation of all sizes submitted for consideration. It represents, in the opinion of the group, the most desirable sizes by which complete interchangeability can be effected in order to provide the integrated, coordinated transportation so necessary to the economic welfare of industry and the general public.

ANOTHER area of importance with which the ASA MH5 committee is concerned, and which is related to the over-all containerization project, is the method of handling. The method of handling is extremely important and complex in that the containers must be handled by means of hooks, overhead cranes equipped with spreader bars, straddle carriers, fork lift trucks, lateral transfer devices at low volume points, and in general by almost any type of lifting gear available to load or unload containers consistent with the maximum weight of the unit involved.

A subcommittee task force has been studying these and related areas, with certain accomplishments to date in the form of recommendations included in the recent letter ballot.

As mentioned previously, there are subcommittees whose objective is to standardize the smaller type containers, such as the pallet-type or pallet-size con-

tainer and the cargo unit container. These containers must be sized and designed so that they can be used in conjunction with the larger demountable van-type containers, as well as to function as a modular series independently. There have been no official recommendations forthcoming from the Pallet Container Subcommittee (Small Containers) or the Cargo Container Subcommittee inasmuch as the final agreement on sizes and configurations by these groups is dependent on adoption of the sizes recommended by the ASA MH5 Van Container Subcommittee, in ballot form at the present time. This does not mean to say that the two subcommittees mentioned have not accomplished a great deal in their deliberations to date. There are six modular sizes of pallet containers which have been semi-officially approved by the subcommittee. These are 36 in. x 29 in., 44 in. x 36 in., 54 in. x 44 in., 88 in. x 44 in., 88 in. x 54 in., 88 in. x 88 in., in heights of 28 in., 40 in., 60 in., and 84 in.

An additional size of pallet container which is now under discussion by the subcommittee is a 27 in. x 22 in. size. Also under consideration are changes in pallet container heights to 27 in., 40 in., 60 in., and 80 in. to be compatible with the 84-in. van container door height recently recommended by the van container subcommittee.

Further work by the pallet container subcommittee is predicated upon the acceptance of recommended van container dimensions.

The cargo container subcommittee recommendations, at this time, follow the line of the Van Container Subcommittee, in so far as the cross-sectional dimensioning is concerned – a height of 8 ft and a width of 8 ft. Also being considered is the possibility of an additional permissible height for certain specialized uses. The methods of handling and securing cargo containers will be compatible with the methods used or recommended by the van container committee.

As in the case of the pallet container subcommittee, the cargo container group is also awaiting the outcome of the ballot inasmuch as its efforts are dependent upon the acceptance of the dimensions for the van containers which are in the ballot state.

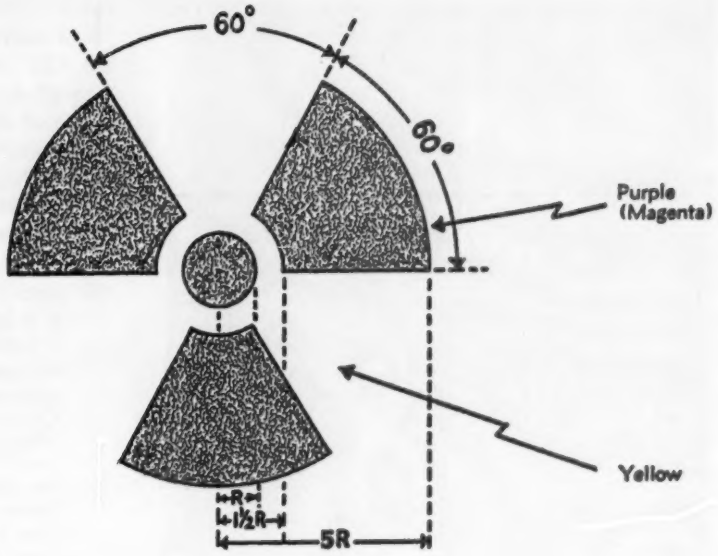
Many groups believe that acceptable standards for containers will accelerate acceptance of containerization as an improvement to the over-all distribution cycle. This has been manifested lately by the greater interest on the part of railroad and trucking groups in their inquiries for demountable van-type containers in sizes recommended by the ASA MH5 committee. In addition, and lending credence to the over-all effort, is the unqualified endorsement on the part of the marine groups of containerized operations. Just recently the Grace S/S Line publicized the loading and sailing of their container ship, a converted C2. This ship will shortly be followed by a sister ship, and in the very near future by three additional ships designed solely for the purpose of handling containerized cargo.

In addition to the Grace Line, there is the Pan Atlantic Steamship (now Sea-Land Service, Inc.) operation which has expanded to include six ships engaged in the coastal trade. The Line recently addressed a request to the Maritime for subsidy for the construction of additional ships to increase this service. Further, the Matson Navigation Company on the West Coast has indicated that it will increase its original estimate with regard to container ship operations; and in recent months the Erie St Lawrence Corporation has indicated that within a year it will place in operation two container ships for handling containerized cargo to various coast ports.

There is every reason to believe that containerization will materially affect and accelerate a coordinated transportation system. Further, the improved efficiencies of such an operational philosophy should provide economic and functional benefit to the shipper and the carrier and at the same time create the reservoir of standardized, integrated transportation equipment necessary to the military.

In road-to-rail operation, a fully loaded freight van is transferred from truck-trailer to flatcar. (Courtesy, New York Central RR, Flexi-Van Service.)

A Warning Symbol for Radiation



by W. A. McAdams

THE SPECTACULAR GROWTH of the atomic energy industry has been accompanied by an ever-growing concern about the hazards of ionizing radiation. This concern has been generated by the fact that the atomic energy industry has made available thousands of new and larger radiation sources which are now being utilized for a variety of applications in medicine, agriculture, industry, and almost every other field. A great deal of attention has been given to the dangers from such sources. As a result, practical methods and equipment have been developed for controlling these hazards. The continued use of radiation and radioactive materials depends to a considerable extent on the effectiveness of the radiation protection systems.

Since the early days of the huge atomic energy projects at the University of Chicago; Oak Ridge, Tennessee; Hanford, Washington; and other sites, radiation protection specialists have sought ways to call special attention to radiation hazards. Most of the employees on these projects had had little or no previous experience with radiation, and steps had to be taken to acquaint them with the new hazards. All sorts of lights, bells, horns, and signals were installed to warn the workers of potential radiation hazards, and a variety of signs, labels, and markers were developed to supplement these visual and audible warning systems.

In the years that followed, various governmental agencies, industrial concerns, medical groups, and other organizations designed unusual symbols to be used on signs and markers to call attention to sources of radiation and radiation hazard conditions. After some time, one symbol, consisting of a reddish purple trefoil (three-bladed propeller) on a yellow background, began to gain wide acceptance. Various forms of this symbol are now used by nearly all organizations engaged in work with radiation or radioactive material. The symbol is used on signs marking the entrance to rooms or areas where sources of radiation are present, on bottles, containers, and packages of radioactive materials, on x-ray equipment or other machines which generate radiation, and on materials or apparatus contaminated with radioactive substances.

On March 1, 1960, the American Standards Association gave final approval to the American Standard Radiation Symbol, N2.1-1960.[1] This standard formally recognizes the trefoil symbol as the proper symbol to denote radiation hazards and specifies general rules for its use. The standard is the first one to be developed through the sectional committees of the Nuclear Standards Board. The symbol is illustrated above.

MR McADAMS, manager of industry standards, General Electric Company, is chairman of Sectional Committee N2, General and Administrative Standards for Nuclear Energy. The committee is sponsored by the Atomic Industrial Forum. Mr McAdams represents the Health Physics Society and the National Electrical Manufacturers Association on the Nuclear Standards Board. He is also a special representative on the Safety Code for the Industrial Use of X-rays and Radiation, Z54, and an alternate representative on the Safety Standards Board.

[1] American Standard N2.1-1960 is available at 50¢ per copy.

THE AMERICAN STANDARD Radiation Symbol had its beginning at the University of California Radiation Laboratory in the latter part of 1946. Various motifs for a symbol to denote the presence of radiation were suggested to the Health Chemistry Department at the Laboratory and the one arousing the most interest was a design which was meant to represent energy radiating from an atom. Various modifications of the design were considered in an attempt to show degree of hazard, type of activity, or other information; but for simplicity, the design finally chosen was an upside-down version of the symbol now adopted as the American Standard.

The next problem was the selection of a color for the symbol. The Radiation Laboratory chose magenta, a slightly reddish purple, because it was unusual and startling and because it was an expensive dye, which fact would tend to discourage its use for other purposes. The Laboratory selected a light blue ("duck back" blue) as the background color for the symbol, because it was a color not often seen in areas where the symbol was likely to be used. Sometime later the background color was changed to yellow because it had been determined scientifically to be one of the most attention-getting colors.

In September 1953, the American Standards Association published American Standard Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment, Z53.1-1953. This code listed vivid reddish purple as the proper color to designate radiation hazards and stated that it should be used in combination with vivid yellow for markers such as tags, labels, signs, and floor markers. This same color scheme has been specified in the radiation symbol standard, N2.1-1960.

THE RADIATION SYMBOL adopted in American Standard N2.1-1960 has already received wide acceptance throughout the United States. It has received the approval of the National Committee on Radiation Protection and Measurement and has been recommended in publications of the committee. It has also been approved officially by the following agencies of government, and its use is mandatory for denoting the hazards due to radiation sources which are under the control of these agencies:

U.S. Atomic Energy Commission
U.S. Department of Defense
California Division of Industrial Safety
Colorado Department of Health
Connecticut Department of Health
Maine Department of Health
Massachusetts Department of Labor and Industry
Michigan Department of Health
Minnesota Department of Health
New York Department of Health
New York Department of Labor
Pennsylvania Department of Health
Texas Department of Health

ABOVE, LEFT: A locked storage cabinet containing radioactive materials is posted with the proper warning sign. BELOW: A sign bearing the symbol marks the entrance to a room where radiation sources are used.

In addition, other governmental agencies have regulations in draft form which, when approved, will require the use of the symbol.

The symbol has also been adopted in one form or another by numerous industrial, educational, research, medical, and other organizations which are engaged in radiation work. It has been used in connection with feature articles on radiation in both popular and trade magazines, and has been seen on several TV shows, has appeared on book covers, has even been the subject of newspaper editorials. All of this indicates that much has already been done to educate the public in the meaning and use of the symbol.

The use of radiation and radioactive materials is growing at a tremendous rate. If this growth continues —and there is every reason to believe it will—it may not be long before the radiation symbol will be as well known for marking radiation hazards as the skull and crossbones is for marking poisons.

A bottle of radioactive liquid is labeled with the American Standard radiation symbol.

IT IS TIME TO NOMINATE

FOR THE HOWARD COONLEY MEDAL

FOR THE STANDARDS MEDAL

NOMINATIONS are now being received by the American Standards Association for award of the 1960 Howard Coonley Medal and Standards Medal. You are invited to submit nominations before June 30, 1960.

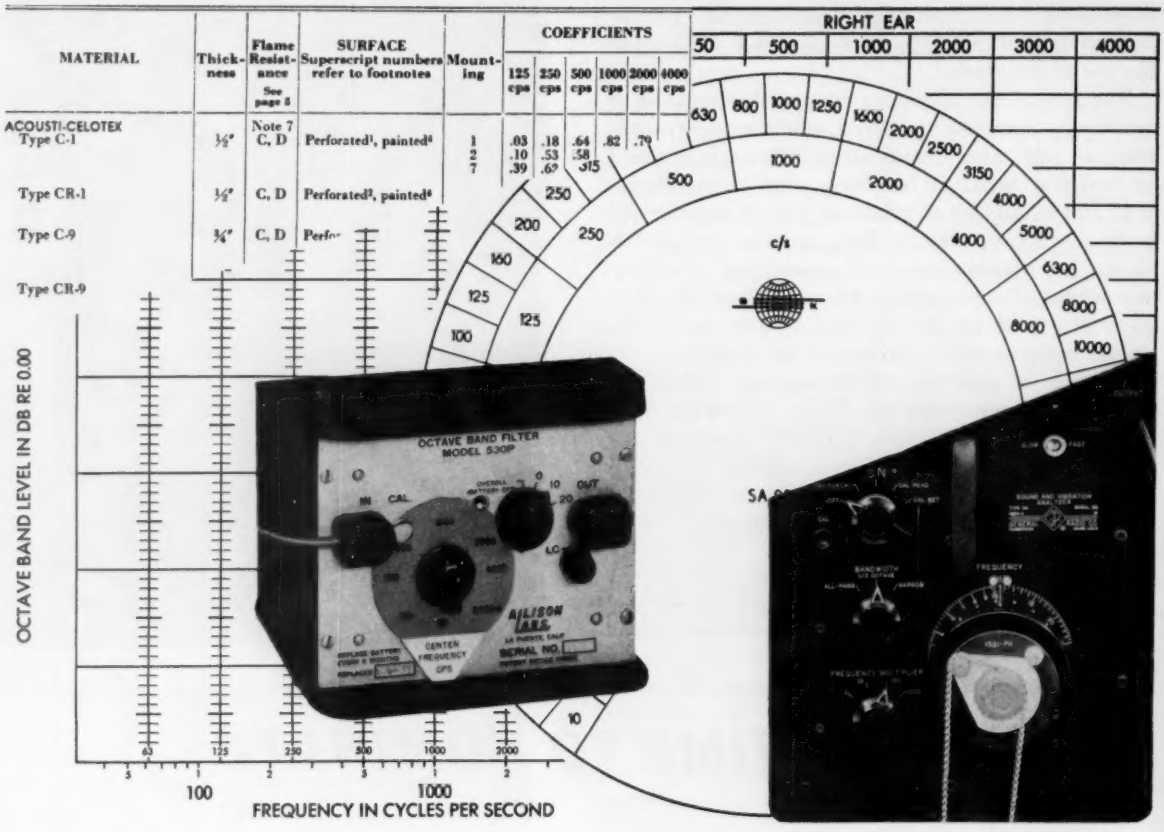
Forms and instructions can be obtained by writing the American Standards Association, 10 East 40 Street, New York 16, N. Y.

The Howard Coonley Medal is awarded "To recognize outstanding appreciation and support of voluntary standardization as a tool of management through which creative abilities may be released from routine operations, and to emphasize to the business community the importance of such use of standardization by management at high executive levels."

Past recipients of the Howard Coonley Medal are: The Honorable Herbert Hoover, Howard Coonley, William Batt, Senator Ralph E. Flanders, Thomas D. Jolly, Dr Harold S. Osborne, Frederick S. Blackall, Jr, Roger E. Gay, John R. Suman, Vincent deP. Goubeau.

Award of the Standards Medal recognizes long and devoted service to standardization, and is made "In recognition of outstanding contributions to the philosophy of the American Standards Association and to its application to voluntary standardization at the national level as well as the constructive development and application of standards and standardization at either company or industry levels."

Past recipients of the Standards Medal are: Paul G. Agnew, Frank O. Hoagland, Perry L. Houser, John Gaillard, James G. Morrow, Charles Rufus Harte, John R. Townsend, William P. Kliment, and William L. Barth.



PREFERRED FREQUENCIES FOR ACOUSTICS

by Robert W. Young

In the words of just-issued American Standard Preferred Frequencies for Acoustical Measurements, S1.6-1960, the simplification that results from the use of frequencies selected in a specified way "reduces to a minimum the number of frequencies at which acoustical data need to be tabulated; equipment may be constructed specifically for these frequencies; even graph paper can be printed in advance for these particular frequencies." The photograph above illustrates items that comply with this new standard.

At the top of the picture is a fragment of a table of sound absorption coefficients of acoustical materials, which in the United States are customarily listed by octave intervals at frequencies 125 to 4000 cycles per second. Tests of hearing are conducted at these same frequencies (plus others), as illustrated by the form for an audiogram at the upper right of the picture.

An exact octave spacing leads to some awkward numbers when a wide frequency range is to be described; the interval corresponding to the factor of ten is then more convenient. Fortunately, 10 successive "one-third octave" intervals are equivalent to a factor of ten in frequency provided the "octave" is reduced in size just a very little. This slightly constricted "octave" is exploited in the new standard. Thus, frequencies are available in a slightly rounded geometric series that contains numerous octave intervals and other very near octaves, yet the series repeats itself by factors of ten.

A good deal of standardization of frequencies for acoustical work had already evolved before the formulation of this new standard. Essential agreement had already been attained as to frequencies to be employed at intervals of one-third and one-half octave, but customs differed for the selection of frequencies at octave intervals. In the case of bands employed for noise measurements, the matter was confused by the practice of identifying octave bands by their cutoff frequencies, whereas one-third octave bands were usually identified by their center frequencies. The new standard provides a uniform procedure based on center frequencies and, regardless of bandwidth or interval, all series include the frequency 1000 cycles per second.

Frequencies such as 256, 512, 1028 cycles per second, once popular for tests in architectural acoustics and hearing had, over the years, been changed to 250, 500, and 1000 cycles per second—numbers more simply recorded or read from instrument dials. In Europe, however, tests of sound absorption coefficients have been reported at frequencies such as 200, 400, and 800 cycles per second, and noise measurements have often been made with octave bands centered at these frequencies. In the United States, on the other hand, noise measurements commonly have been made with octave bands whose center frequencies are 212, 425, 850 cycles per second, etc. Floor vibration measurements have been made by octave bands whose centers form the series 1.4, 2.8, . . . 180, 360. It is not unusual for a noise control problem to require consideration of building vibration, ambient noise, and sound absorption coefficients. Such calculations are awkward when the three kinds of data are tabulated on three different series of frequencies. The new standard constitutes a guide to the elimination of such difficulties in the future.

Compliance with this new standard will ultimately require the replacement of some filters used for noise measurement. It is not to be expected, however, that users will discard expensive filters at once. One convenient means of translating measurements made with existing equipment is to interpolate graphically. There are already available special graph papers for plotting, to the same scales, noise measurements made with various filters. A manufacturer of such papers, the Codex Book Company, has added a new graph paper to its regular series to make it easy to plot measurements made in accordance with American Standard S1.6-1960. A portion of the new graph paper is shown at the left in the picture. Data first plotted on the graph paper appropriate to an available filter can then be readily transferred, simply by tracing, to the paper illustrated above to yield data for tabulation at the frequencies 250, 500, 1000 cps, etc.

Some sound analyzing instruments that conform to the new standard are also illustrated in the picture: an octave-band filter, a combination third-octave and octave-band spectrometer, and a combination narrow and third-octave band sound and vibration analyzer. The frequency scale of the last is continuous, but small dots (see the picture) make it easy for the user to set the dial at the preferred frequencies for third-octave intervals. Notice that, in significant figures, these preferred frequencies do not change on multiplication by different factors of ten. This is of importance for an instrument such as the one illustrated, that goes all the way from the infrasonic frequency of 2.5 cycles per second to the ultrasonic 25 kilocycles per second. By use of the preferred frequencies, vibration measurements made at quite low frequencies can be related easily, by factors of ten, to measurements at frequencies well above the audible.

The dial in the center of the picture is for an instrument that produces a sound analysis by third-octave bands centered on the preferred frequencies. Analysis by octave bands is also possible with the same instrument. Notice that, as the dial suggests, each octave band consists of three adjacent third-octave bands and the center frequency of the principal octave band is the same as the center frequency of the middle third-octave band.

This new standard is concerned only with frequencies that form a geometric series and not those required in tests for which a constant-frequency difference is appropriate. The standard does not deal with frequencies for music.

It will be recognized that American Standard Preferred Frequencies for Acoustical Measurements, S1.6-1960, is an application of the general principles set forth in American Standard on Preferred Numbers, Z17.1-1958.[1] Also, this new standard for acoustics is patterned after a proposal currently under consideration for adoption as an international standard.

Copies of S1.6-1960 can be purchased from the American Standards Association at 35 cents each.

MR YOUNG is consultant in acoustics on the staff of the technical director of the Navy Electronics Laboratory, San Diego, California, and president-elect of the Acoustical Society of America. He was chairman of the Writing Group that prepared American Standard S1.6-1960. Other members of the group were: J. R. Cox, Jr, Central Institute for the Deaf; Laurence E. Kinsler, U.S. Naval Post-Graduate School, Monterey, California; Richard W. Lane, Defense Research Laboratory, Austin, Texas; V. E. B. Ranfelt, Bell Telephone Laboratories, Murray Hill, N. J.; Daniel R. von Recklinghausen, H. H. Scott, Inc, Maynard, Mass.

Mr Young reports that the new American Standard is very similar to a draft for an international standard prepared by Technical Committee 43, Acoustics, of the International Organization for Standardization.

[1] Available from the American Standards Association at $1.00 each.

By recognizing that item identification numbers for purchased parts affect the entire production operation of a company, and planning accordingly, Convair-Pomona is now using a highly efficient purchased part numbering system completely integrated into engineering and production operations—with cost savings down the line.

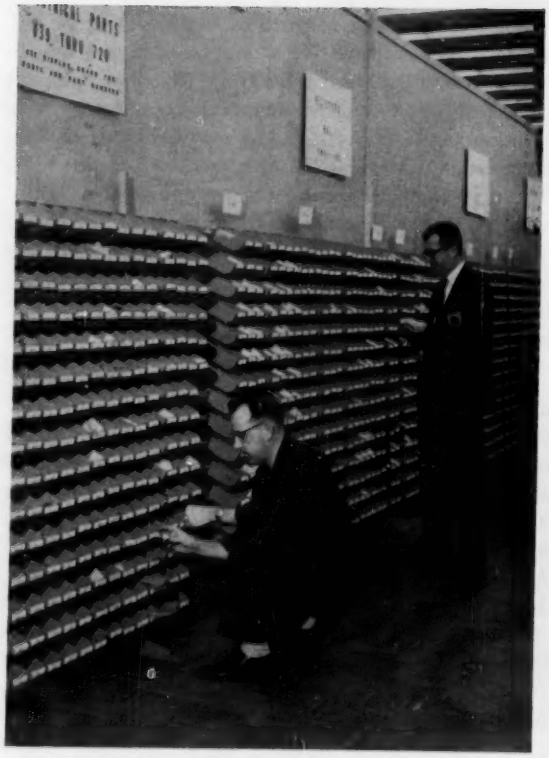
Integrate Your Item Identification Number Systems!

by J. A. POMEROY

IN THE EARLY 1950's, Convair-Pomona was faced with a major systems problem—it had outgrown its World War II item identification numbering system. The use of many different governmental, industrial, and vendor catalogs was defeating all attempts at standardization. Efforts to mechanize the release of engineering information were being stymied by lack of a uniform, readily accountable item identification number. Corrective action was imperative.

A team composed of systems and procedures and engineering standards people was formed to study the problem and recommend its solution to management. What the team found is typical of the situation in many growing companies today.

1. There was no standard numbering system in use—instead, many different numbering systems were in effect. One midget flange-base incandescent lamp was "correctly" identified and stocked under its vendor number, two Military Standards numbers, a



Widely used, inexpensive standard parts are available on a "supermarket" basis. (Pictures courtesy Convair-Pomona)

MR POMEROY is supervisor of management services, Systems and Procedures Section, Administrative Services Department at Convair-Pomona, Convair Division of General Dynamics Corporation. Mr Pomeroy has been working in administrative systems since 1952.

Convair "CVAC" number, and an Army-Navy "AN" number! A list of frequently used numbers for parts stocked will give an idea of the varying numbers in effect:

AN 173-12A	BOLT
MS 210905-12	TEE
MIL-W-16878A/G	WIRE
NAF 1088-1	CHAIN
NAS 43 DDO-10	SPACER
QQ-A-268	ALUMINUM ALLOY
RD 142/U	CONNECTOR
UG 253/U	JACK
CVAC #RE155	RECEPTACLE
RP 101SA2ROJJ	RESISTOR

2. With multiple numbering systems in use, there was a complete lack of uniformity among numbers, which had random alphabetic characters and dash numbers (NAS-430D-10, MIL-W-1678A/6), and varied in length from two to twenty-six digits.
Attempts to cope with these numbers in Tabulating had produced chaos until, in self-defense, Tabulating had succeeded in getting Material Department to assign a seven-digit "material number" which served as the item's machine identification number.

3. Item identification numbers for raw materials were completely lacking. They were identified only by specification number followed by material size: QQ-A-318 5052-H34 x .9 x 1.7.
Processing this type of number in Tabulating required the assignment of a "material number" to hold the alpha-numerical specification number in place in tabulations.

4. Since item identification numbers were assigned by nontechnical Material Control personnel, a single item would frequently have several duplicate part numbers in the system.
Depending on the catalog used by the designer, Engineering would requisition a given part under any one of its many possible identification numbers. The result was inevitable—duplicate part numbers.

5. With multiple catalogs being used by different designers, attempts at standardization were futile. In one electronic package alone, there were 23 different types of attaching hardware called out on engineering drawings. The problems of buying, stocking, and using so many types of hardware were felt along the line.

THE STUDY TEAM very quickly determined that what Convair-Pomona needed was an integrated numbering system which would serve the entire company's operation—from initial product design to shipping. Having made this decision, a thousand and one practical questions had to be answered:

How many digits should the number have?
Should the number be all numbers, or could it have alphabetic characters in it?

Raw materials stock clerk identifies materials by referring to the item identification number

Should the number be significant—that is, should it attempt to code the item identification data?
Who should assign it?
Who should document it?

Before answering these questions, let's consider why we have numbers at all. Parts have names to differentiate one from another. So long as a business is at the corner grocery store level, words are probably all that is necessary to get what is wanted. "I want a bolt about so long and about as big as a pencil." But as a business grows, the degree of difference between items handled grows less and less, with the result that the names of items must necessarily become longer.

Instead of calling for a "¼-inch screw by about 1 inch long," industry specifies "a machine screw, binding head, recessed, cadmium-plated steel, ¼ 28 UNF-3A x 1 inch long." As these data become longer and longer, the necessity for a simple number to identify the item clearly and easily becomes increasingly important.

There is nothing magic about the number. It is simply the address to the document which gives the specific data regarding the item, in sufficient detail to differentiate it from every other item.

This brings us back to the problem faced by the study team: If they were going to assign numbers to parts and materials used within Convair-Pomona, what kind of number or numbers could they use?

The answer to this question led to the planning of an ideal number with the following characteristics:

1. *Simplicity*—the ideal number should contain the minimum number of digits which successfully identify the total number of items to be cataloged. It should be simple—arranged so as to be easy to write and say.

2. *Uniformity*—a standard number of digits should be used in every part number with dashes appearing always in the same places.

3. *Ready Accountability*—where punched card machine accounting will be used, a straight numerical number is best, one which is free of alphabetic characters requiring additional sorting time.

4. *Significance*—to basic noun only, the number should group together all like items.

The number that was finally accepted was a nine-digit number made up of three groups of three digits each:

661-001-001

/	|	\
Basic noun "Resistor"	Significant Adjectives	Minor Variables

This number is simple, easy to say, and easy to remember. It is uniform, and its freedom from alphabetic characters makes it a natural for efficient processing by tabulating on punched cards. Its length—9 digits—provides ample room for growth—one billion possible combinations. As for significance, the first three digits of this number provide for classifying all parts and materials by their basic noun[1] in alphabetic order:

005	ALUMINUM
130	CAPACITORS
661	RESISTORS
713	SCREWS
864	WIRES

The number itself, of course, is only the address to a document which describes the part or material in sufficient detail to differentiate it from every other item of supply. The question of who assigns and documents the number is all-important in its success. Convair-Pomona gave the responsibility of assigning and documenting the number to the Engineering Department Standards Group. This served two basic purposes: (1) Engineering provides the technical manpower necessary to document the item adequately for selecting, procuring, and inspecting the item. (2) By predetermining those items on which it wishes to standardize, and identifying these items by issuing them as "engineering standard parts," the aim of standardizing design around reliable, readily available purchased parts and materials is achieved.

Convair goes a step further in this regard by stocking standard parts on a minimum-maximum basis, and supplying them to engineering personnel with only a minimum of paperwork. Widely used inexpensive items are actually available to engineers on a "supermarket" basis with no paperwork involved.

Let us compare the engineer's problem in deciding which part to use in his design before and after the new system was installed.

In the past, a designer had to become familiar with procurement specifications which in general language defined the requirements applicable to all designs of military hardware. Then, he had to refer to an ever-growing number of military and vendor catalogs to pin down the specific item required. When he needed performance data to determine the applicability of the item to his design, he had to refer to other reference data or to data often incomplete, supplied by vendor catalogs. A large proportion of his "design time" was being spent trying to determine the specific item required by his design, and then communicating these data clearly to Purchasing and Inspection. Small wonder standardization was only a desirable goal!

Under today's system the designer needing a part such as an electron tube simply refers to his Standard Parts Manual. The general index tells him electronic tubes are filed in Section 308. His design calls for a diode which the section index tells him is filed under Section 308 060.

Referring to Standard Sheet 308 060, he finds the detailed catalog-type information necessary to differentiate this part from all other parts, and the characteristics and dimensions controlled by applicable specifications which are of interest to design selection and application. But is this part the most applicable to his design? By turning to the standard application supplement, he has available to him performance curves, recommendations as to its use, cross reference to mating parts, and other engineering data essential to the proper design application of the part. Having selected the applicable part, he simply needs to call out its 9-digit number and the quantity needed in his design. The procurement supplement to the standard, which has been forwarded to Purchasing, has already provided Purchasing with a complete buying description of the item. Instead of ordering some untried part he happened to run across in a vendor's catalog, the Convair-Pomona designer has specified a standard part, one which already is available in the Engineering Parts Store without the necessity for a special purchase order.

[1] Companies stocking widely diverse items will find the Federal Item Identification Guide, which classifies items according to usage (i.e., electronics, hydraulics, etc) extremely useful in setting up a numbering system and assigning titles to items.

Only if there is no standard part available for the design requirement does the designer specify a new nonstandard item. In this case, if the item is to be used in production, he prepares a request for item identification, and the Engineering Standards Group researches to ensure that the item has not already been assigned a number. If it has not, the Group prepares a simple item identification sheet for the item. The Standard Parts Manual has placed as much essential design data as possible right at the designer's fingertips—in one location. Tying the assignment and documentation in with the Engineering Standards Group thus serves the very important goal of standardization.

For items to be used in production, as item identification sheets are prepared they are distributed to catalogs throughout the company. Their use in Purchasing has provided an answer to a perennial problem of purchasing agents—the proprietary or single-source item. Prior to using item identification sheets, Convair-Pomona engineers referred directly to vendor catalogs for the items they needed in their design. When the desired item was located, the engineer would prepare a purchase order requisition calling for Joe Doake's part number "XYZ." Purchasing was forced into procurement from a single source simply because it had no assurance that anyone else made the equivalent item—at perhaps half the cost. Today, if more than one vendor makes an item, all approved sources are noted on the item identification sheet, and the engineer merely specifies the 9 digit part number he requires—Purchasing is able to get competitive bids from multiple sources—and the taxpayer saves in the process.

Inspection is enthusiastic over the use of the item identification sheets, which are filed as they are produced. Under the old system, when a purchase order was placed for an item, Receiving Inspection attempted to obtain a copy of the vendor's catalog, and inspected the parts received against the vendor's catalog description of the item. These catalog descriptions often failed to describe the item adequately, or the vendor had made product improvements causing his part no longer to agree with the catalog description. Occasionally, these changes affected the item physically or functionally to the degree that the part was no longer usable in the design for which it was intended. These changes required Receiving Inspection to check with the design engineer to verify that a part which differed from the vendor catalog was in fact usable. Using the new item identification sheets, Convair is buying the vendor's item *as described on Convair Item Identification Sheet No. X.* Inspection files copies of all item identification sheets, and when parts are received, pulls the specification sheet and inspects the parts to it. Once again, confusion is eliminated.

The 9-digit number aids in stocking and record keeping in Material Control and Stores. Records are maintained in uniform order by 9-digit part numbers. Identical parts bought from different vendors are kept in the same location under one part number. Raw materials which used to require long experience to identify the specification and gage now have their 9-digit number stencilled along their entire length, and are easily identified by any stock clerk filling a requisition for the material identified only by its 9-digit number and size. Material people "never had it so good."

Identical parts from different vendors are now stocked in one location under their item identification number.

Designing the ideal numbering system for a company is not an easy task. Getting management to see the problem may be an insurmountable hurdle. Once agreed on the problem, getting sovereign departments to agree on a solution may take months of effort. Many groups will want to foist their own favorite numbering system on the group, or may attempt to build so much significance into the number that they will fail to allow for necessary growth.

But if there is a genuine attempt in which the needs of all departments are considered, a simple item identification system can be the key to tremendous cost reduction in your company. Looking back, Convair-Pomona wonders how it ever got along without its system of item identification.

This is the twenty-ninth installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954 (Reaffirmed 1959). The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-700. An index to Cases 400-700 has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954 (R1959), the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.

Reprints of Cases 400-700, with the index, are now available from ASA at $2.25. Discounts for quantity orders may be obtained on request.

Are These Cases Work Injuries?

CASE 752 [A1.6 (f)]

A stenographer slipped as she was entering the elevator in the public lobby on the ground floor of the building in which the company leased office space, including the entire eighth floor. She was on her way to her job, which was in an office on the eighth floor of the building. Her injury caused her to lose time from work.

Decision: This injury should not be considered a work injury, and should not be included in the work injury rates, on the basis that the employer's premises consisted of the eighth floor and the entrance to plant property in this case would be considered the elevator door at the eighth floor.

CASE 753 (5.3)

A paper machine tender, working at his regular occupation, was on the catwalk removing broke which weighed a few pounds. He had some broke in his hands and was turning to throw it to the floor below when he felt a sharp pain behind his leg, just below the knee, which started to swell immediately.

He went immediately to his doctor, where the leg was bandaged, and then he returned to work to complete his shift. The following day he again saw his doctor who put the leg in a cast and told him he would be off work for probably five weeks. The attending doctor gave a diagnosis of disruption of the planteris tendon, and stated that the man had suffered a similar injury just one year previously in the other leg while he was out hunting. The doctor also said that the injury could have occurred anywhere, and that this man might have recurrences of the same injury at any time. It was argued that there had been no incident or circumstance present when the injury occurred, and that the employee had been doing his normal and regular work when the disruption of the planteris tendon took place.

Decision: This should be considered a work injury and included in the rates in accordance with the ultimate extent of disability, on the basis that the act of turning and throwing the broke was believed sufficient to aggravate the apparent pre-existing condition of the employee's knee.

CASE 754 (1.6)

An electrician engaged in fixing a fluorescent light, which was lying on the floor, stooped down to make the necessary repairs. He was in this position for a few seconds, but when he was returning to his normal upright position something in his knee snapped. He was not lifting anything and was making no extra effort of any sort which might have caused this condition. The medical

findings in this case indicated that there was a torn cartilege which required immediate repair.

Decision: This injury should be included in the work injury rates on the grounds that it either resulted entirely from, or was aggravated by, the employee's work activity.

CASE 755 [A1.6 (d) 5.12]

A salesman was returning from his work in his car when he stopped for a school bus which was disembarking children. While the salesman was waiting for the children to emerge from the bus, his car was struck in the rear by another auto. The salesman suffered a severe whip-lash to the neck which culminated in a spinal fusion about six months later.

The salesman did not use a business office, but worked out of his home, to which he was returning at the time of the accident. The man was driving a company car. The company asked whether this accident could be considered under paragraph 5.12 as an event over which the employer had no control.

Decision: This injury should be considered a work injury and included in the rates on the basis that it arose out of and in the course of employment. The case would not be considered under paragraph 5.12 which applies primarily to cataclysms, particularly to devastating natural events in no way related to employment.

CASE 756 (5.2)

A female employee was hired as an assembler on electronic work. On a Monday, shortly after being hired, she had returned from a break, and was in the act of sitting down in a swivel chair in front of the work bench where she worked when she sat down and scooted backwards before turning the chair to face the bench. The back of the chair fell off, and she leaned forward quickly, catching herself with her left hand on the edge of the work bench. At this time she noted a sharp pain towards the right of the tailbone. About three hours later she reported to the first-aid room requesting aspirin tablets for a backache. On the following two days she went to a chiropractor for back manipulations, and the following day she reported to the nurse in the first-aid room for a backache, at this time advising the nurse that she had had some trouble with her back slipping out, and had gone to a chiropractor for adjustment.

The next day, after having gone again to the chiropractor, the employee reported to the first-aid room where she told the nurse the history of her back trouble, which had occurred on the previous Monday. At this time the nurse called a physician, and the employee was admitted to the hospital where an orthopedic surgeon examined her and put her to bed in traction. He believed that the train of events which apparently caused the back trouble could have been set off by any one of a number of minor traumatic incidents, such as chiropractic adjustments.

The woman had given a past history of back trouble in her employment interview but the company overlooked this item. The company questioned the authenticity of her alleged accident at work.

Decision: This case should be considered a work injury and included in the work injury rates as a temporary total disability. Because the company could not disprove the employee's alleged story, it appeared that this case met the requirements of paragraph 5.2.

CASES 757 through 763

Hypothetical cases, not to be used as precedent.

CASE 764 [A1.6 (i)]

A sales service representative was having his coffee break at his desk, as permitted by the company. In chasing a fly away from his face, he accidentally knocked over a cup of coffee, allowing the hot contents to pour over his leg. He continued to work that day, and came back to work for several more hours after his dinner that night.

The following day he visited a doctor because the leg was giving him pain. The doctor examined the leg, finding second to third degree burns in the area where the hot coffee had spilled. In addition, he detected the start of an infection, and ordered the employee to bed.

Decision: This should be considered a work injury and included in the rates since it occurred during a coffee break, which is considered to be part of the normal course of employment.

CASE 765 (5.2)

Borderline case. Does not set a precedent.

CASE 766

In a company which was a multiple plant enterprise grouped into divisions and staffs, an employee suffered a chargeable injury. Although he was on the division payroll, he did not work in any of the division's buildings but was permanently stationed in a building of the company's engineering staff. He was not covered by the division safety program, but was part of the engineering staff program; and the division safety engineer did not go into the building in which the injured man worked because the engineering staff safety engineer regularly did so. This service was paid for by the division in an inter-company payment.

The company asked whether this employee's lost time should be charged to the division because of his payroll affiliation or to the engineering staff because he worked there.

Decision: This particular situation is not specifically covered in the standard, but the committee suggested that this injury be charged to the engineering staff on the basis that the engineering staff was responsible for the supervision of this worker when he was injured.

CASE 767 (1.2.3)

A female employee was buffing a small casting on a bench grinder equipped with cloth buffing wheel. She was holding the casting by hand when the wheel apparently grabbed the casting, and her left index finger was struck against the wheel guard. The diagnosis was avulsion laceration terminal phalanx left index finger, and the treatment was nine sutures in the left index finger.

Three months later there was still numbness and loss of strength in the finger. Examination revealed a well healed scar with little or no deformity except possibly a small loss of the subcutaneous fat. Function in the finger was normal with regard to range of motion and strength and the color was normal. There was, however, a definite decrease in tactile and pain perception in the scar area. The doctor did not believe further treatment would help, and he estimated disability as five percent loss of use of hand.

The company questioned whether decrease in tactile and pain perception should be considered as loss of use.

Decision: The loss of sensation in a finger should be considered to be loss of use, and, therefore, this case should be considered a permanent partial disability, and included in the work injury rates. The time charges should be a percentage of the total time charges for the finger, if possible, rather than a percentage of loss of use of the hand; and in any event the time charge should be something less than the total charge for the complete loss of the distal phalange of the finger.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Information about those standards not selected for listing in THE MAGAZINE OF STANDARDS may also be obtained from the ASA Library. Orders for these standards may be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. For the convenience of readers, the standards are listed under their general Universal Decimal Classification number. In ordering copies of standards, please refer to the number following the title.

621.822 BEARINGS

Italy (UNI)

21 stds for different types of radial ball, roller, and tapered bearings conforming with ISO Recommendation R 15 UNI 4203/23

Poland

2 stds for ball and roller bearings, precision type PN M 86402,-4

Rumania (OSS)

Radial ball bearings (except tapered roller bearings) STAS 5975-58

Spain (IRATRA)

Bushing for axle bearing UNE 18070

629 AUTOMOBILE ENGINEERING

France (AFNOR)

Brake linings NF R 126-01

Dynamos for motor cars NF R 131-01

2 stds for automobile lamp bayonet socket NF R 136-21,-32

Automobile springs, grooved leaves NF R 172-01

Automobile springs, flat leaves NF R 172-02

Germany (DNA)

Deep wheel rims for automobiles and trailers DIN 7817

5 stds for tires for different vehicles DIN 7797/9, 7805, 7811

Drop-bottom rims for automobiles and trailers DIN 7818

Israel (SII)

Air-brakes for motor vehicles, diaphragm S.I. 320

Spain (IRATRA)

Testing of brake lining UNE 26131

Axle bushings, pressed in UNE 26135

Lubrication groove in bearing bushing UNE 26136

2 stds for turn signals indicator, mechanical UNE 26137/8

Survey of symbols on automobile dashboard buttons UNE 26139

High frequency automobile horn UNE 26140

Trailer's tail signal UNE 26141

651 OFFICE MANAGEMENT, PRACTICE AND ROUTINE

Belgium (IBN)

Alphabetical arrangement for names of persons, firms, geographical spots and ways of communication NBN 399

Norway (NS)

Layout of different commercial letterheads and forms NS 891

Spain (IRATRA)

Binders for archives UNE 1010

662.75 LIQUID FUELS. MINERAL OIL

Belgium (IBN)

Classification of liquid fuels NBN 52.096

Germany (DNA)

Determination of viscosity and reaction to temperature of lubricating oils and liquid fuels DIN 51563

Determination of active sulfur in fuels DIN 51759

Determination of active sulfur in special fuels and solvents DIN 51760

Determination of starting point of paraffin precipitation in Diesel fuels DIN 51772

Determination of lubricating oil contents in fuel mixtures for two-stroke engines DIN 51784

2 stds for determination of boiling point of internal combustion engine fuels DIN 51751/2

Sweden (SIS)

Method for the determination of the flash-point with the Abel-Pensky apparatus without stirrer SIS 15 02 22

Method for the determination of the flash-point with the Abel-Pensky apparatus with stirrer SIS 15 02 23

Method for the determination of the flash-point in an enclosed crucible with Pensky-Marten apparatus SIS 15 02 24

USSR

Fuel for internal combustion machines, determination of thermal stability GOST 9144

666 GLASS AND CERAMICS INDUSTRY

Germany (DNA)

Determination of resistance of enamel to muriatic acid DIN 51 157

Sweden (SIS)

2 stds for testing porcelain enamels for acid resistance SIS 51 95 01/2

Plate glass. Terminology and types SIS 52 55 01

Plain glass for engineering purposes SIS 52 55 04

USSR

Raw clay for ceramic industry, test methods GOST 5499

Raw clay for ceramic industry, classification GOST 9169

669 METALLURGY

France (AFNOR)

2 stds for chemical analysis of manganese NF A 06-096/7

Chemical analysis of ferro- and silico-alloys NF A 06-208

Steel slag ladle, 10 m^3 capacity NF A 72-113

Germany (DNA)

Lead and lead alloys for cable sheathing DIN 17640

Aluminum alloys DIN 1725

Sheets and bands of wrought aluminum alloys DIN 1745

Bars and wires of wrought aluminum alloys DIN 1747

Extruded wrought aluminum alloys shapes DIN 1748

Different wrought copper alloys, survey DIN 17662

Hot-rolled square steel bars DIN 1014

Hot-rolled hexagon steel bars DIN 1015

Hot-rolled half-round and flat half-round steel bars DIN 1018

Hot-rolled equal-angle, sharp-edged steel shapes (type LS-steel) DIN 1022

Steel sheets over 4.75 mm, deviations of measurements and weight DIN 1543

Hot-rolled sharp-edged T-shapes DIN 59051

Israel (SII)

Galvanized sheets S.I. 313

Aluminum and aluminum alloy scrap S.I. 319

Portugal (IGPAI)

Different grades of steel for rivets NP 191

Rumania (OSS)

Brinell hardness test of metals STAS 165-58

Spain (IRATRA)

Fatigue test of metals. Classes and procedure UNE 7118

Copper wire, drawn, for general use UNE 37110

Aluminum and its alloys. Equal angles, hot-rolled UNE 38049

Aluminum and its alloys. Unequal angles, hot-rolled UNE 38053

Aluminum and its alloys. Bulb angles, hot-rolled UNE 38059

2 stds for light aluminum alloy for forging UNE 38301/2

2 stds for light magnesium alloy for casting UNE 38512/3

United Kingdom (BSI)

Electroplated coatings of nickel and chromium BS 1224:1959

USSR

Tables showing micro-structure of steel GOST 5640

Unalloyed and alloyed steels with high ohmic resistance GOST 9232

Corrugated steel sheets, trapezoidal cross section GOST 9234

Bulb strips, rolled steel for shipbuilding GOST 9235

White metals for bearings GOST 1209

Lead, chemical analysis of GOST 1293

697 HEATING, VENTILATION, AIR CONDITIONING

Rumania (OSS)

Rules for calculation of independent chimneys STAS 3466-58

Sweden (SIS)

Ventilating hood SIS 56 89 10

United Kingdom (BSI)

Open fireplace components:

Firebacks for use with inset open fires BS 1251: Part 1:1959

Fireplace surrounds and hearths BS 1251: Part 2:1959

Adjustable chimney-throat restrictors BS 1251: Part 3:1959

Coke-burning inset open fires without boiler and without convection: Performance and constructional requirements BS 2845: Part 2:1959

Constructional and performance requirements for inset open fires with boiler and without convection BS 3128:1959

News Briefs . . .

• A NEW TECHNICAL committee on electronic computer systems has been organized by the National Fire Protection Association to study the problem of providing fire protection for computer installations, components, and associated records. The action was requested by the electronic computer systems industry following the Pentagon fire of last July in which the estimated losses totaled at least $6,690,000.

John J. Ahern, director of security, General Motors Corporation, Detroit, Michigan, will serve as chairman.

• TO MAKE IT EASIER for private citizens as well as public officials to find information contained in zoning ordinances, the American Society of Planning Officials has issued a bulletin on how to index ordinances. The American Standard Basic Criteria for Indexes, Z39.4-1959, is used as the basis. The report gives specific provisions of the standard and shows how they can be adapted where special problems in the zoning ordinances cause trouble in indexing.

• PROF. ING. Alfredo Navarro Serano has been named director of the Colombian standards institute, the Instituto de Normas. The institute is associated with the Division of Scientific Research of the Industrial University of Santander in Bucaramanga, Colombia. This is one of three research institutes associated with the division.

• ONE OF THE SERVICES THE MAGAZINE OF STANDARDS offers readers is a listing of standards from other countries received by ASA each month. Only relatively few of the many received can be listed, because of lack of space, but your editors attempt to choose carefully those titles published. The number of standards selected from each country represents roughly the relative number of standards received. During 1959, standards from 31 countries were listed. Among these were several special lists of German standards and French standards that have been translated into English.

The national standards bodies of the following countries were represented in these lists:

Argentina 31; Australia 25; Austria 41; Belgium 24; Bulgaria 25; Canada 18; Czechoslovakia 93; Denmark 23; Finland 1; France 185; Germany 276; Hungary 117; India 46; Ireland 5; Israel 28; Italy 44; Japan 234; Mexico 4; Netherlands 29; New Zealand 11; Norway 11; Poland 90; Portugal 3; Rumania 39; Spain 34; Sweden 72; Switzerland 25; South Africa 21; United Kingdom 77; USSR 97; Uruguay 3.

• A STANDARD FOR CONTROL of color in the four-color printing process has been adopted by the American Photoengravers Association. The standard is a color control bar showing four combinations of solid color and 75 percent density. This was approved unanimously by the American Association of Advertising Agencies, the Magazine Publishers Association, and the Printing Industry of America.

Before approval of the new color bar, a collection had been made of some 30 bars in current use, all differing from each other.

The new standard should enable photoengravers and printers to check the quality of the inking by making it possible for all to make use of the same kind of color bar.

GEORGE NOBLE

It was a shock to his many friends to learn of the sudden death of George Noble in January of this year. Mr Noble had recently retired as head of the standards division of the Dominion Engineering Company, Ltd, Montreal, Canada, but had continued his activities as consultant. He was stricken with a heart attack while working at his desk.

Mr Noble had been vice-chairman of the Canadian Standards Association's Committee on Engineering Drawings, Mechanical Section, and since 1950 had been a member of the Canadian team of the ABC Group for the Unification of Engineering Drawing Standards. His articles on the relationship of simplified drafting to the ABC drawing standards, published in THE MAGAZINE OF STANDARDS in August 1958, brought considerable comment.

Mr Noble was a Fellow of the Standards Engineers Society and had been active in forming the first Canadian Section of the Society.

• WALTER G. WRIGHT, vice-president - operations, General Telephone and Electronics Corporation, has become a member of ASA's Board of Directors. Mr Wright was nominated by the Telephone Group. He will complete the unexpired term of H.R. Huntley, who recently retired as chief engineer of the American Telephone & Telegraph Company.

Mr Wright has been in the telephone industry since 1924. After five years with the Bell companies in various engineering capacities, he joined the International Telephone and Telegraph Corporation in 1929. During 22 years with the International System, Mr Wright held various engineering and operations positions in this country, and spent 10 years with ITT's South American properties. In 1951, he joined the General System as chief engineer for General Telephone Company of Michigan. From 1953 to 1957 he served as president of General Telephone Company of the Southwest.

Mr Wright was elected vice-president-operations of General Telephone Corporation, New York, in 1957, and retained that position when General Telephone and Electronics Corporation was formed in 1959, following General's merger with Sylvania Electric Products, Inc.

Walter G. Wright

Mr Wright is a graduate of Rutgers University, with a Bachelor of Science degree in electrical engineering. He is a former director of the Texas Research League and the United States Independent Telephone Association. Currently, he is serving on the National Industry Advisory Committee of the Federal Communications Commission.

• THE NATIONAL STANDARDS bodies of Iran and Colombia have joined the International Organization for Standardization as new members, and the standards body of Nationalist China has renewed its membership. This brings the total membership of ISO to 44.

The Iran standards organization is part of the Ministry of Commerce with headquarters in Teheran. Dr Majid Khorsand is director.

The Instituto de Normas of the Scientific Research Division, Industrial University of Santander, at Bucaramanga, Colombia, is the Colombian standards body. Professor Dr J. Ramirez-Munoz, head of the Scientific Research Division, is in charge of the standards work.

The National Bureau of Standards of China (Formosa) is one of the founder organizations of ISO. The Bureau's director, S. T. Shang, was one of the group of standards men from 13 countries who met in New York in 1945 and took the first steps to reorganize the wartime United Nations Standards Coordinating Committee into the present International Organization for Standardization.

• *OPTICS AND SPECTROSCOPY (Optika i Spektroscopiya)*, published by the USSR Academy of Sciences, is now being translated by the Optical Society of America. The translation starts with the January 1959 issue (Vol 6, No. 1). It is available with the Society's Journal at $25.00 per year to Society nonmembers.

The USSR journal publishes the work of Russian scientists in all branches of optics and spectroscopy.

Subscriptions should be sent to the publisher, the American Institute of Physics, 335 E. 45 Street, New York 17, N. Y.

• ON RECOMMENDATION of the industry groups concerned, the American Standards Association recently took action to become a participating member of the international technical committee on pallets, ISO/TC 51. ASA also has advised the International Organization for Standardization that the U.S. is in favor of setting up a technical committee on cranes, derricks, and excavations, and is interested in participating in the work of the committee. However, the U.S. groups prefer that derricks be studied separately on a performance basis.

Gaillard Seminar on Standardization

Dr John Gaillard, consultant on industrial standardization, will hold his next five-day seminar on this subject in the Engineering Societies Building, New York City, from June 20 through 24, 1960. The major purpose of his seminars is to assist top management in organizing the administrative setup and procedure for handling standardization work in the individual company, and training staff men in the functions of the standards engineer, including the art of writing specifications. So far, 419 representatives from 235 organizations in the United States and five other countries have attended.

For details and registration, write to Dr John Gaillard, 135 Old Palisade Road, Fort Lee, New Jersey.

CAN YOU HELP?

THE DEPARTMENT OF DEFENSE is seeking information on drawing numbering systems and part numbering systems now being used by industry. Will you send descriptions of your systems together with comments relative to their desirable features for military use to the Deputy Director for Standardization, Directorate of Cataloging and Standardization, U.S. Army Transportation Materiel Command, Fort Eustis, Virginia, as soon as possible.

The information collected from industry and the military services will serve as a basis for development of uniform systems for use throughout the Department of Defense, S. DeStefano, the deputy director explains. "This is being done under Department of Defense Project DRPR-0042, Drawing Numbers and Part Numbers, and is intended to help implement Phase III of Standardization Project 703-27." This latter project was responsible for the recently promulgated MIL-D-70327 on engineering drawings.

Conferences will be held to review the findings and decide on the best approach to a uniform system. The draft of the proposed system will be coordinated with industrial and military activities prior to adoption and implementation by the Department of Defense.

New Books . . .

ALUMINUM CONSTRUCTION MANUAL. *First edition.* 1959. 390 *pp.* 6 x 9. *Aluminum Association,* 420 *Lexington Avenue, New York* 17, N.Y. $3.00. Intended primarily as a reference work to aid engineers and designers in designing aluminum structures, the Manual contains data on dimensioning, allowable loads for beams and columns, and miscellaneous reference material. The American Standard Building Code Requirements for Minimum Design Loads in Buildings and Other Structures is reprinted by special permission of the American Standards Association. The book is in five parts. Part 1 contains data on aluminum structural shapes; Part 2 contains dimensioning, weight, and other data useful in preparing estimates and drawings; Part 3 includes allowable-load data for beams and columns of alloy 6061-T6, calculated in accordance with the specifications of the American Society of Civil Engineers; Part 4 contains specifications for structures of aluminum alloys 6061-T6, and 2014-T6 published by ASCE, data on properties of aluminum structural alloys, and material on design loads published by ASA; Part 5 includes miscellaneous reference data useful to structural engineers and designers.

ASTM MANUAL FOR RATING DIESEL FUELS BY THE CETANE METHOD. *September* 1959. 130 *pp. American Society for Testing Materials,* 1916 *Race Street, Philadelphia* 3, *Pa.* $8.50. This Manual is a revision bringing the ASTM Cetane Method D 613 up to date. In seven appendixes detailed information is given, by word and picture, on the apparatus used, on operation, installation and assembly, and maintenance of the rating equipment. The Manual describes the test for determining the ignition quality of Diesel fuels in terms of ASTM Cetane numbers.

Originally known as the Diesel Method, CRC Test Procedures for Determining Ignition Quality of Diesel Fuels CRC designation F-5-543, or F-5 Method, it is now recommended that the short title "Cetane" be used to identify the method. The method was originally a part of the "ASTM Manual of Engine Test Methods for Rating Fuel." However, in 1955 Technical Committee No. 28 on Petroleum Products of the International Organization for Standardization submitted the Motor Method, D 357, and Research Method, D 908, as draft ISO Recommendations. These methods were subsequently separated from the other three standards in the 1953 Manual and published in 1956 in the ASTM Manual for Rating Motor Fuels by Motor and Research Methods. A revision of this volume, now in progress, should be completed early in 1960.

In December 1958, the ASTM Aviation Method, D 614, and the Supercharge Method, D 909, were revised and brought up to date in a new volume entitled "ASTM Manual for Rating Aviation Fuels by Supercharge and Aviation Methods."

INTERNATIONAL SYMPOSIUM ON PLASTICS TESTING AND STANDARDIZATION. *November* 1959. 276 *pp. American Society for Testing Materials,* 1916 *Race Street, Philadelphia* 3, *Pa.* $6.00. This symposium was sponsored by the American Society for Testing Materials, October 1958, in Philadelphia. The program was arranged to coordinate with the Eighth Annual Meeting of Technical Committee 61, Plastics, of the International Organization for Standardization, held in November 1958, Washington, D.C.

Four general topics were presented: How National Standards Are Achieved; Engineering Properties of Plastics; Thermal Properties of Plastics; and Molecular Characterization. The session on "How National Standards Are Achieved" presents the 1958 national standardization story of 12 nations. The sessions on engineering properties and on thermal properties of plastics deal with techniques applicable to the standardization work of today and the near future. The papers in these sessions offer information on the ever advancing technology, and the technical basis on which the national standards of the world are built. The final session on methods for molecular characterization points the way to standardization technology of the future.

. . . Questions

Are metric equivalents of the Unified screw thread inch dimensions available?

Although the metric equivalents are not published in the American Standard Unified and American Screw Threads, B1.1-1949, nor in the 1959 edition now being considered for approval, they are given in the British Standard Unified Screw Threads, B.S. 1580. Copies are available from the American Standards Association at $2.70 each.

Does the Navy Publication Department use the standard letter size sheet (8½ x 11) or the special U.S. Government size? If it uses the latter, why?

The Bureau of the Budget prescribes sizes for letterhead stationery on the basis of Government Printing and Binding Regulations issued by the Congressional Joint Committee on Printing and appropriate sections of Title 44, United States Code, Public Printing and Documents, which assign paper standardization responsibilities to the Joint Committee on Printing. These regulations, and public law, are in turn based on the need for the maximum possible economy in Government printing and binding. As one step in providing for such economy, Government Printing Office press sheet sizes differ from standard commercial sizes in that standard Government sizes of press sheets and of the final printed material are designed to reduce paper requirements wherever possible. Considering the tremendous amount of paper used in Government printing and binding, even fractional reductions in the sizes of stationery or other material can and do save the taxpayers a considerable amount of money.

As a matter of interest, there has been considerable discussion on the relative merits of Government standard sizes versus commercial sizes in printing Navy technical manuals or handbooks, particularly when such manuals or handbooks are initially produced by commercial printers as part of a Navy contract for equipment and research.

—Reply by George A. Floyd, Director of Public Relations, Publications and Printing Office, Twelfth Naval District, to question asked at a National Conference on Standards.

We are interested in obtaining standards for hydrostatic tests for valves and fittings. The Index and Price List of American Standards does not include such a standard.

There is no American Standard dealing with the subject of hydrostatic tests as such. However, recommendations regarding hydrostatic tests of valves and fittings will be found in individual standards. For example, in American Standard Steel Pipe Flanges and Flanged Fittings, B16.5-1957, such tests are covered under Section 8. The specified pressures are given in Tables 2 to 8, inclusive, for the material and primary rating of the item to be tested. The American Standard Cast Iron Pipe Flanges (Class 125), B16.1-1948(R1953), includes the statement: "These fittings shall be designed to withstand, without showing leaks, hydrostatic test pressures of twice the rated steam pressure."

Copies of American Standard B16.5-1957 may be purchased from ASA at $3.00 each. American Standard B16.1-1948(R1953) is being revised. The new edition should be available within the next few months.

AMERICAN STANDARDS

Just Published . . .

If your company is a member of the American Standards Association, it is entitled to receive membership service copies of these newly published American Standards. The ASA contact in your company receives a bimonthly announcement of new American Standards, which also serves as an order form. Find out who your ASA contact is and order your American Standards through him. He will make sure your company receives the service to which it is entitled.

DRAWINGS, SYMBOLS AND ABBREVIATIONS

Letter Symbols for Rocket Propulsion, Y10.14-1959 $2.00

Lists letter symbols used in equations and formulas relating to rocket propulsion.

Sponsors: American Society of Mechanical Engineers

ELECTRIC AND ELECTRONIC

Code for Protection Against Lightning, Part I, Protection of Persons, C5.1-1959; Part II, Protection of Buildings and Miscellaneous Property, C5.2-1959; Part III, Protection of Structures Containing Flammable Liquids and Gases, C5.3-1959 (Revision of C5.1-1953; C5.2-1953; C5.3-1953) $0.50

Rules for protective measures and precautions to be taken to protect structures and human beings against lightning.

Sponsors: National Fire Protection Association; National Bureau of Standards; American Institute of Electrical Engineers

Dry Cells and Batteries, Specification for, NBS Handbook 71, ASA C18.1-1959 (Revision of C18.1-1954) $0.25

Sponsor: National Bureau of Standards

Insulation Resistance of Electrical Insulating Materials, Methods of Test for, ASTM D 257-58; ASA C59.3-1959 (Revision of ASTM D 257-54T; ASA C59.3-1955) $0.50

Procedures for the determination of insulation resistance, volume resistance, surface resistance, volume resistivity, and surface resistivity of specimens of electrical insulating materials.

Sponsor: American Society for Testing Materials

GAS-BURNING APPLIANCES

Gas Water Heaters, Volume I, Z21.10.1-1959 (Revision of Z21.10.1-1956, Z21.10.1a-1957, Z21.10.1b-1958) $2.00

Minimum limiting construction and performance requirements and test methods to ensure safe operation, durable construction, and acceptable performance for water heaters (except side-arm type water heaters having input rating less than 50,000 Btu per hour) for use with natural, manufactured and mixed gases, liquefied petroleum gases, or LP gas-air mixtures.

Gas Water Heaters, Volume II, Side-Arm Type Water Heaters, Z21.10.2-1959 (Revision of Z21.10.2-1956, Z21.10.2a-1957, Z21.10.2b-1958) $2.00

Minimum limiting construction and performance requirements and test methods to ensure safe operation, durable construction, and acceptable performance for side-arm type water heaters with input ratings less than 50,000 Btu per hour, designed for use with auxiliary storage systems for domestic service, and using natural, manufactured and mixed gases, liquefied petroleum gases, or LP gas-air mixtures.

Sponsor: American Gas Association

MECHANICAL

Machine Tapers, B5.10-1960 (Revision of B5.10-1953) $2.50

Establishes (1) *standard practice for the slope of self-holding and steep machine tapers;* (2) *detailed dimensions for this type of taper tool shank;* (3) *corresponding dimensions for the taper socket in the spindle of the machine, including the dimensions of keyways.*

Sponsors: American Society of Tool and Manufacturing Engineers; Metal Cutting Tool Institute; Society of Automotive Engineers; National Machine Tool Builders' Association; American Society of Mechanical Engineers

NUCLEAR ENERGY

Radiation Symbol, N2.1-1960 $0.50

Design, proportions, and color for a symbol to be used to signify the actual or potential presence of ionizing radiation such as gamma- or x-rays, alpha or beta particles, high-speed electrons, neutrons, protons, or other nuclear particles.

Sponsor: Atomic Industrial Forum

PETROLEUM PRODUCTS AND LUBRICANTS

Method of Test for Water and Sediment by Centrifuge, ASTM D 96-59T; ASA Z11.8-1960 (Revision of ASTM D 96-48; ASA Z11.8-1948) $0.30

Distillation of Petroleum Products, Method of Test for, ASTM D 86-59; ASA Z11.10-1960 (Revision of ASTM D 86-56; ASA Z11.10-1956) $0.30

Method of Test for Sulfur in Petroleum Products and Lubricants by the Bomb Method, ASTM D 129-58; ASA Z11.13-1960 (Revision of ASTM D 129-52; ASA Z11.13-1952) $0.30

Lubricating Grease, Methods of Analysis, ASTM D 128-59; ASA Z11.16-1960 (Revision of ASTM D 128-47; ASA Z11.16-1948) $0.30

Distillation of Gas Oil and Similar Distillate Fuel Oils, Method of Test for, ASTM D 158-59; ASA Z11.26-1960 (Revision of ASTM D 158-58; ASA Z11.26-1955) $0.30

Dilution of Gasoline Engine Crankcase Oils, Method of Test for, ASTM D 322-58T; ASA Z11.29-1960 [Revision of ASTM D 322-35; ASA Z11.29-1935 (R1953)] $0.30

Distillation of Plant Spray Oils, Method of Test for, ASTM D 447-59T; ASA Z11.43-1960 (Revision of ASTM D 447-57T; ASA Z11.43-1957) $0.30

Ramsbottom Carbon Residue of Petroleum Products, Method of Test for, ASTM D 524-59; ASA Z11.47-1960 (Revision of ASTM D 524-58T; ASA Z11.47-1958) $0.30

Ash from Petroleum Oils, Method of Test for, ASTM D 482-59T; ASA Z11.54-1960 (Revision of ASTM D 482-46; ASA Z11.54-1947) $0.30

Sulfated Residue, Lead, Iron, and Copper in New and Used Lubricating Oils, Methods of Test for, ASTM D 810-59; ASA Z11.57-1960 (Revision of ASTM D 810-48; ASA Z11.57-1949) $0.30

Sediment in Fuel Oil by Extraction, Method of Test for, ASTM D 473-59; ASA Z11.58-1960 (Revision of ASTM D 473-48; ASA Z11.58-1949) $0.30

Butadiene Content of Polymerization Grade Butadiene and Buatdiene Concentrate, Method of Test for, ASTM D 973-59; ASA Z11.66-1960 (Revision of ASTM D 973-50; ASA Z11.66-1950) $0.30

Sulfated Ash from New Lubricating Oils, Method of Test for, ASTM D 874-59T; ASA Z11.68-1960 (Revision of ASTM D 874-57T; ASA Z11.68-1957) $0.30

Acetylenes in Butadiene, Method of Test for, (Silver Nitrate Method), ASTM D 1020-59; ASA Z11.74-1960 (Revision of ASTM D 1020-52; ASA Z11.74-1952) $0.30

Butadiene Dimer and Styrene in Butadiene Concentrates, Method of Test for, ASTM D 1024-59; ASA Z11.79-1960 (Revision of ASTM D 1024-53; ASA Z11.79-1953) $0.30

Carbonyl Content of Butadiene, Method of Test for, ASTM D 1089-59; ASA Z11.81-1960 (Revision of ASTM D 1089-53; ASA Z11.81-1953) $0.30

Total Inhibitor Content (p-Tertiary-Butyl-Catechol) of Butadiene, Method of Test for, ASTM D 1157-59; ASA Z11.102-1960 $0.30

Sponsor: American Society for Testing Materials

PHOTOGRAPHY

Dimensional Change Characteristics of Photographic Films and Papers, Methods for Determining, PH1.32-1959 $1.50

Methods for determining dimensional changes of photographic films and papers caused by (1) *variations in moisture content due to change in relative humidity of the atmosphere;* (2) *change in temperature;* (3) *normal processing steps of developing, fixing, washing, and drying; and* (4) *processing plus aging.*

Sponsor: Photographic Standards Board

PIPE AND FITTINGS

Wrought-Steel and Wrought-Iron Pipe, B36.10-1959 (Revision of B36.10-1950) $1.50

Sponsors: American Society for Testing Materials; American Society of Mechanical Engineers

In Process . . .

As of March 18, 1960

Standards Council—Gives final approval to American Standards; Board of Review—Acts for Standards Council; Standards Board—Approves standards to send to Board of Review or Standards Council.

ACOUSTICS, VIBRATION, AND MECHANICAL SHOCK

Standards Submitted

Acoustical Terminology, S1.1- (Revision of Z24.1-1951)

Sponsor: Acoustical Society of America

Characteristics of Auxiliary Equipment for Shock and Vibration Measurements, Method for Specifying, S2.4-

Sponsors: Acoustical Society of America; American Society of Mechanical Engineers

Criteria for Background Noise in Audiometer Rooms, S3.1-

Monosyllabic Word Intelligibility, Method for Measurement, S3.2-

Sponsor: Acoustical Society of America

BUILDING AND CONSTRUCTION

American Standard Approved

Fireclay Refractory Brick, Classification of, ASTM C 27-58; ASA A111.5-1960 (Revision of ASTM C 27-56; ASA A111.5-1956)

Sponsor: American Society for Testing Materials

In Board of Review

Clay Drain Tile, Specifications for, ASTM C 4-59T; ASA A6.1- (Revision of ASTM C 4-55; ASA A6.1-1956)

Sponsor: American Society for Testing Materials

Gypsum Plasters, Specifications for, ASTM C 28-59; ASA A49.3- (Revision of ASTM C 28-58; ASA A49.3-1958)

Sponsor: American Society for Testing Materials

Rail-Steel Bars for Concrete Reinforcement, Specifications for, ASTM A 16-59T; ASA A50.2- (Revision of ASTM A 16-57; ASA A50.2-1958)

Sponsor: American Society for Testing Materials

Gypsum and Gypsum Products, Methods of Testing, ASTM C 26-59; ASA A70.1- (Revision of ASTM C 26-58; ASA A70.1-1958)

Sponsor: American Society for Testing Materials

Hollow Load-Bearing Concrete Masonry Units, Specifications for, ASTM C 90-59; ASA A79.1- (Revision of ASTM C 90-52; ASA Z79.1-1953)

Sponsor: American Society for Testing Materials

Hollow Non-Load-Bearing Concrete Masonry Units, Specifications for, ASTM C 129-59; ASA A80.1- (Revision of ASTM C 129-52; ASA A80.1-1953)

Sponsor: American Society for Testing Materials

Solid Load-Bearing Concrete Masonry Units, Specifications for, ASTM C 145-59; ASA A81.1- (Revision of ASTM C 145-52; ASA A81.1-1953)

Sponsor: American Society for Testing Materials

Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units, Specifications for, ASTM C 126-59T; ASA A101.1- (Revision of ASTM C 126-57T; ASA A101.1-1958)

Sponsor: American Society for Testing Materials

Vitrified Clay Filter Block for Trickling Filters, Specifications for, ASTM C 159-59T; ASA A102.1- (Revision of ASTM C 159-55; ASA A102.1-1956)

Sponsor: American Society for Testing Materials

In Standards Board

Reinforced Masonry, Building Code Requirements for, A41.2-

Sponsor: National Bureau of Standards

CHEMICAL

In Standards Board

Common Name for the Pest Control Chemical 4-chloro-2-butynyl *m*-chlorocarbanilate: barban, K62.23-

Sponsor: U.S. Department of Agriculture

ELECTRIC AND ELECTRONIC

In Board of Review

Supplement C57.12.00a to Section 00, General, of American Standard Requirements, Terminology and Test Code for Distribution, Power, and Regulating Transformers and Reactors Other Than Current-Limiting Reactors, C57.12.00-1958

Sponsor: Electrical Standards Board

In Standards Board

Weather-Resistant (Weatherproof) Wire and Cable (URC Type), C8.18- (Revision of C8.18-1948)

Sponsor: Electrical Standards Board

Electrical Power Insulators, Test Methods for, C29.1- (Revision of C29.1-1944)

Sponsor: Electrical Standards Board

Reaffirmation Approved

Incandescent Lamps:

Train, Locomotive, and Country Home Service, 30-34 and 60-64 Volts, C78.102-1949 (R1960)

Street Railway Service, C78.103-1949 (R1960)

Street Series Service, C78.109-1949 (R1960)

S-6 Bulb, Candelabra Screw Base, C-7 Bulb, Candelabra Screw Base, C78.-200-1949 (R1960)

S-11 Bulb, Medium Screw Base, C78.-201-1949 (R1960)

S-11 Bulb, Intermediate Screw Base, C78.202-1949 (R1960)

S-14 Bulb, Medium Screw Base, C78.-203-1949 (R1960)

A-15 Bulb, Medium Screw Base, C78.-204-1949 (R1960)

A-17 Bulb, Medium Screw Base, C78.-205-1949 (R1960)

A-19 Bulb, Medium Screw Base (Overall Length-Maximum 3 15/16 Inches, Minimum 3 9/16 Inches), C78.206-1949 (R1960)

T-6½ Bulb, Intermediate Screw Base, C78.207-1949 (R1960)

T-10 Bulb, Medium Screw Base, C78.-208-1949 (R1960)

T-10 Reflector Bulb, Medium Screw Base, C78.209-1949 (R1960)

A-19 Bulb, Medium Screw Base (Overall Length-Maximum 4¼ Inches, Minimum 3⅞ Inches), C78.210-1949 (R1960)

A-19 Bulb, Medium Screw Base (Overall Length-Maximum 4 7/16 Inches, Minimum 4 1/16 Inches), C78.211-1949 (R1960)

T-8 Bulb, Medium Screw Base, C78.-212-1949 (R1960)

PS-25 Bulb, Three-Contact Medium Screw Base, C78.213-1949 .R1960)

PS-25 Bulb, Three-Contact Mogul Screw Base, C78.214-1949 (R1960)

A-21 Bulb, Medium Screw Base (Overall Length-Maximum of 4 7/16 Inches, Minimum 4 1/8 Inches), C78.215-1949 (R1960)

A-21 Bulb, Medium Screw Base (Overall Length-Maximum 5 5/16 Inches, Minimum 4 15/16 Inches), C78.216-1949 (R1960)

A-21 Bulb, Medium Screw Base (Overall Length-Minimum 4 15/16 Inches, Minimum 4 9/16 Inches), C78.217-1949 (R1960)

A-23 Bulb, Medium Screw Base, C78.-218-1949 (R1960)

G-30 Bulb, Three-Contact Mogul Screw Base, C78.213-1949 (R1960)

PS-25 Bulb, Medium Screw Base, C78.220-1949 (R1960)

PS-30 Bulb, Medium Screw Base, C78.221-1949 (R1960)

PS-35 Bulb, Mogul Screw Base, C78.-223-1949 (R1960)

PS-40 Bulb, Mogul Screw Base, C78.-224-1949 (R1960)

PS-52 Bulb, Mogul Screw Base, C78.-225-1949 (R1960)

P-25 Bulb, Medium Screw Base, C78.-226-1949 (R1960)

G-30 Bulb, Medium Screw Base, C78.-233-1949 (R1960)

G-40 Bulb, Mogul Screw Base (Overall Length-Maximum 7 1/16 Inches, Minimum 6½ Inches), C78.234-1949 (R1960)

G-40 Bulb, Mogul Screw Base (Overall Length-Maximum 8 Inches, Minimum 7 7/16 Inches, C78.235-1949 (R1960)

PAR-38 Bulb, Medium Skirted Screw Base, C78.238-1949 (R1960)

PS-25 Bulb, Mogul Screw Base. C78.-245-1949 (R1960)

T-64 Bulb, Mogul Bipost Base, C78.-248-1949 (R1960)

Sponsor: Electrical Standards Board

MECHANICAL

American Standards Approved

Large Rivets, B18.4-1960 (Revision of B18.4-1950)

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service, Specifications for, ASTM A 194-59T; ASA G38.1-1960 (Revision of ASTM A 194-58; ASA G38.1-1959)

Sponsor: American Society for Testing Materials

In Board of Review

Instrument Precision Ball Bearings, Requirements for, B3.10- (Revision of B3.10-1959)

Metal Balls, Specifications for, B3.12-

Sponsor: Anti-Friction Bearing Manufacturers Association

In Standards Board

Square and Hexagon Bolts and Nuts, B18.2- (Revision of B18.2-1955)

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

MEDICAL

In Board of Review

Anesthetic Equipment: Endotracheal Tubes, Z79.1-

Sponsor: American Society of Anesthesiologists

METALLIC COATINGS

American Standards Approved

Zinc (Hot Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Specifications for, ASTM A 123-59; ASA G8.1-1960 (Revision of ASTM A 123-53; ASA G8.1-1956)

Zinc Coating (Hot Dip) on Iron and Steel Hardware, Specifications for, ASTM A 153-59; ASA G8.14-1960 (Revision of ASTM A 153-53; ASA G8.14-1956)

Sponsor: American Society for Testing Materials

Electrodeposited Coatings of Nickel and Chromium on Zinc and Zinc-Base Alloys, Specifications for, ASTM B 142-59; ASA G53.5-1960 (Revision of ASTM B 142-58; ASA G53.5-1959)

Sponsor: American Society for Testing Materials

METALLURGY

American Standards Approved

Zinc-Coated (Galvanized) Iron or Steel Sheets, Coils, and Cut Lengths, Specifications for, ASTM A 93-59T; ASA G8.2-1960 (Revision of ASTM A 93-58T; ASA G8.2-1959)

Safeguarding Against Embrittlement of Hot Galvanized Structural Steel Products and Procedure for Detecting Embrittlement, Recommended Practice for, ASTM A 143-59; ASA G8.13-1960 (Revision of ASTM A 143-46; ASA G8.13-1956)

Sponsor: American Society for Testing Materials

In Board of Review

High-Strength Structural Rivet Steel, Specifications for, ASTM A 195-59T; ASA G42.1- (Revision of ASTM A 195-52T; ASA G42.1-1956)

Sponsor: American Society for Testing Materials

MINING

In Standards Board

Use of Wire Rope for Mines, Specifications for, M11.1- (Revision of M11-1927)

Sponsors: Wire Rope Technical Board; American Mining Congress

MISCELLANEOUS

American Standard Approved

ASTM Thermometers, Specifications for, ASTM E 1-59; ASA Z71.1-1960 (Revision of ASTM E 1-58; ASA Z71.1-1959)

PHOTOGRAPHY

In Board of Review

Roll Film and Leaders and Trailers for Aerial Photography, Dimensions for, PH1.10- (Revision of PH1.10-1952)

Sponsor: Photographic Standards Board

Speed of Photographic Negative Materials (Monochrome, Continuous-Tone), Method for Determining, PH2.5- (Revision of PH2.5-1954)

Sponsor: Photographic Standards Board

PIPE AND FITTINGS

American Standards Approved

Standard Strength Ceramic Glazed or Unglazed Sewer Pipe, Specifications for, ASTM C 261-59T; ASA A106.4-1960 (Revision or ASTM C 261-57T; ASA A106.4-1958)

Sponsor: American Society for Testing Materials

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for, ASTM A 105-59T; ASA G17.3-1960 (Revision of ASTM A 105-58; ASA G17.3-1959)

Sponsor: American Society for Testing Materials

Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for, ASTM A 182-59T; ASA G37.1-1960 (Revision of ASTM A 182-58; ASA G37.1-1959)

Sponsor: American Society for Testing Materials

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for General Service, Specifications for, ASTM A 181-59T; ASA G46.1-1960 (Revision of ASTM A 181-58; ASA G46.1-1959)

Sponsor: American Society for Testing Materials

In Board of Review

Cast Iron Culvert Pipe, Specifications for, ASTM A 142-59T; ASA G26.1- (Revision of ASTM A 142-38; ASA G26.1-1942)

Sponsor: American Society for Testing Materials

In Standards Board

Cast-Iron Pipe Flanges and Flanged Fittings, Class 125, B16.1- [Revision of B16.1-1948 (R1953)]

Cast-Iron Pipe Flanges and Flanged Fittings, Class 250, B16.2- [Revision of B16b-1944 (R1953)]

Sponsors: American Society of Mechanical Engineers; Manufacturers Standardization Society of the Valve and Fittings Industry; Mechanical Contractors Association of America

PLASTICS

American Standards Approved

Deformation of Plastics Under Load, Methods of Test for, ASTM D 621-59; ASA K65.4-1960 (Revision of ASTM D 621-51; ASA K65.4-1959)

Haze and Luminous Transmittance of Transparent Plastics, Method of Test for, ASTM D 1003-59T; ASA K65.5-1960 (Revision of ASTM D 1003-52; ASA K65.5-1959)

Ammonia in Phenol-Formaldehyde Molded Materials, Method of Test for, ASTM D 834-59T; ASA K65.11-1960 (Revision of ASTM D 834-57; ASA K65.11-1959)

Sponsor: American Society for Testing Materials

RUBBER

American Standard Approved

Sample Preparation for Physical Testing of Rubber Products, Methods of, ASTM D 15-59T; ASA J1.1-1960 (Revision of ASTM D 15-58T; ASA J1.1-1959)

Sponsor: American Society for Testing Materials

TEXTILES

In Standards Board

Colorfastness to Acids and Alkalis, Test Method for, AATCC 6-1957; ASA L14.2- (Revision of L14.2-1956)

Colorfastness of Wool Textiles to Carbonizing, Test Method for, AATCC 11-1957; ASA L14.3- (Revision of L14.3-1956)

Colorfastness of Silk Textiles to Degumming, Test Method for, AATCC 7-1957; ASA L14.4- (Revision of L14.4-1956)

Colorfastness of Wool Fabrics and Yarn to Fulling, Test Method for, AATCC 2-1957; ASA L14.5- (Revision of L14.-5-1956)

Colorfastness of Wool Textiles to Mill Washing and Scouring, Test Method for, AATCC 1-1957; ASA L14.6- (Revision of L14.6-1956)

Colorfastness of Silk Textiles to Peroxide Bleaching, Test Method for, AATCC 13-1957; ASA L14.7- (Revision of L14.7-1956)

Colorfastness to Stoving, Test Method for, AATCC 9-1957; ASA L14.9- (Revision of L14.9-1956)

Single Jute Yarn, Methods of Testing and Tolerances for, ASTM D 541-58; ASA L14.34- (Revision of L14.34-1953)

Glass Yarns, Methods of Testing and Tolerances for, ASTM D 578-58; ASA L14.36- (Revision of L14.36-1951, 2nd ed.)

Jute Rove and Plied Yarn for Electrical and Packing Purposes, Methods of Testing and Tolerances for, ASTM D 681-58; ASA L14.44- (Revision of L14.44-1953)

Rope Made from Bast and Leaf Fibers, Methods of Testing and Tolerances for, ASTM D 738-58; ASA L14.45- (Revision of L14.45-1953)

Spun, Twisted, or Braided Products Made from Flax, Hemp, Ramie, or Mixtures thereof, Methods of Testing and Tolerances for, ASTM D 739-58; ASA L14.46- (Revision of L14.46-1953)

Tex System to Designate Linear Density of Fibers, Yarn Intermediate, Yarns, and Other Textile Materials, Recommended Practice for Use of, ASTM D 861-58T; ASA L14.48- (Revision of L14.48-1953)

Colorfastness to Light (Carbon-Arc Lamp Test; Daylight Test; Sunlight Test), AATCC 16A,B,C-1957; ASA L14.53- (Revision of L14.53-1953)

Colorfastness of Dyed Textiles to Atmospheric Oxides of Nitrogen, Test Method for, AATCC 23-1957; ASA L14.54- (Revision of L14.54-1951)

Resistance of Textiles to Mildew and Rot, and Evaluation of Textile Fungicides, Test Method for, AATCC 30-1957; ASA L14.55- (Revision of L14.-55-1951)

Colorfastness to Perspiration, Test Method for, AATCC 15-1957; ASA L14.56- (Revision of L14.56-1956)

Colorfastness to Chlorine Bleaching (Cotton and Linen), Test Method for, AATCC 3-1957; ASA L14.57- (Revision of L14.57-1956)

Colorfastness to Peroxide Bleaching, Test Method for, AATCC 29-1957; ASA L14.58- (Revision of L14.58-1956)

Resistance to Wetting (Static Immersion Absorption Test), AATCC 21-1957; ASA L14.61- (Revision of L14.61-1956)

Colorfastness to Pleating, Test Method for, AATCC 31-1958; ASA L14.63- (Revision of L14.63-1956)

Resistance of Textiles to Insects, Test Method for, AATCC 24-1952; ASA L14.64- (Revision of L14.64-1951)

Evaluation of Insect Pest Deterrents on Textiles, Test Method for, AATCC 28-1952; ASA L14.65- (Revision of L14.-65-1951)

Colorfastness of Silk Textiles to Mill Washing, Text Method for, AATCC 4-1957; ASA L14.70- (Revision of L14.-70-1956)

Colorfastness to Dry and Wet Heat (Hot Pressing), Test Method for, AATCC 5-1957; ASA L14.71- (Revision of L14.71-1956)

Colorfastness to Crocking (Rubbing), Test Method for, AATCC 8-1957; ASA L14.72- (Revision of L14.72-1956)

Dimensional Changes in Textiles Other Than Wool, Test Method for, AATCC 40-1957; ASA L14.76- (Revision of L14.76-1956)

Resistance to Water Penetration (Impact Penetration Test), Test Method for, AATCC 42-1957; ASA L14.78- (Revision of L14.78-1956)

Colorfastness of Textiles to Commercial Laundering and Domestic Washing (Accelerated Tests Nos. IIA, IIIA, and IVA), Test Method for, AATCC 61-1957; ASA L14.81- (Revision of L14.81-1956)

Colorfastness to Water (Distilled or Deionized Water, Sea Water, and Chlorinated Pool Water), Test Method for, AATCC 63-1957; ASA L14.83- (Revision of L14.83-1956)

Damage Caused by Retained Chlorine, Test Method for, AATCC 69-1958; ASA L14.86- (Revision of L14.86-1956)

Average Fiber Diameter of Wool Tops, Card Silver, and Scoured Wool by Micronaire Method, Methods of Test for, ASTM D 1282-57T; ASA L14.-104-

Alkali-Solubility of Wool, Method of Test for, ASTM D 1283-57; ASA L14.105-

Sponsor: American Association of Textile Chemists and Colorists; American Society for Testing Materials

Withdrawal Being Considered

Methods of Testing Woven Asbestos Cloth, L14.35-1953
Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Men's and Boys' Woven Athletic-Uniform Fabrics, L22.2.16-1952

Women's and Girls' Woven Shoe Fabrics, L22.1.21-1952

Embroidery Threads, Ribbons and Trimmings, L22.2.23-1952
Sponsor: National Retail Merchants Association

WOOD

American Standards Approved

Ash in Wood, Method of Test for, ASTM D 1102-56; ASA O13.1-1960

Alpha-Cellulose in Wood, Method of Test for, ASTM D 1103-55T; ASA O13.2-1960

Holocellulose in Wood, Method of Test for, ASTM D 1104-56; ASA O13.3-1960

Preparation of Extractive-Free Wood, Method for, ASTM D 1105-56; ASA O13.4-1960

Lignin in Wood, Method of Test for, ASTM D 1106-56; ASA O13.5-1960

Alcohol-Benzene Solubility of Wood, Method for Test for, ASTM D 1107-56; ASA O13.6-1960

Ether Solubility of Wood, Method of Test for, ASTM D 1108-56; ASA O13.7-1960

One-Percent Caustic Soda Solubility of Wood, Method of Test for, ASTM D 1109-56; ASA O13.8-1960

Water Solubility of Wood, Methods of Test for, ASTM D 1110-56; ASA O13.9-1960

Methoxyl Groups in Wood and Related Materials, Method of Test for, ASTM D 1166-55T; ASA O13.10-1960

Sponsor: American Society for Testing Materials

In Board of Review

Wood Paving Blocks for Exposed Platforms, Pavements, Driveways, and Interior Floors Exposed to Wet and Dry Conditions, Specifications for, ASTM D 52-59T; ASA O9.1- (Revision of ASTM D 52-20; ASA O9.1-1958)

Sponsor: American Society for Testing Materials

Creosoted End-Grain Wood Block Flooring for Interior Use, Specifications for, ASTM D 1031-59; ASA O10.1- (Revision of ASTM D 1031-55; ASA O10.1-1958)

Sponsor: American Society for Testing Materials

NEWS ABOUT AMERICAN STANDARDS PROJECTS

Safety Code for Elevators, Dumbwaiters, and Escalators, A17 —

Sponsors: American Institute of Architects; American Society of Mechanical Engineers; National Bureau of Standards

The committee met January 13 and discussed a draft of a complete revision of the Safety Code for Elevators, A17.1-1957, and of the Inspectors' Manual, A17.2-1945. Both drafts are now being sent to letter ballot of the sectional committee.

Reactor Safety Standards, N6—

Sponsors: American Nuclear Society; American Society of Mechanical Engineers

A proposed standard for operation of research and test reactors has been published in the American Nuclear Society's News, January 1960, for comment. After six months of study and receipt of comments, it is expected that the standard will be submitted to the American Standards Association. Comments should be sent to Marvin M. Mans, U.S. Atomic Energy Commission, Division of Inspection, Washington 25, D.C.

Aerial Passenger Tramways, B77 —

Sponsors: The American Society of Mechanical Engineers; Eastern Ski Area Operators Association

The committee met on December 2 and 3, 1959, and reviewed a complete draft standard. As a result of this meeting, the revised draft has been sent to letter ballot of the sectional committee.

Small Tools and Machine Tool Elements, B5—

Sponsors: American Society of Mechanical Engineers; National Machine Tool Builders' Association; Society of Automotive Engineers; Metal Cutting Tool Institute; American Society of Tool and Manufacturing Engineers

A proposed standard on spindle flanges for precision boring machines is now in preparation and copies can be obtained for criticism and comment. Purpose of the standard is to provide interchangeability of tool or work holders between machine tools of different makes in the user's plant.

Copies of the draft are available without charge from Manuel Gutierrez, standards engineer, ASME, 29 W. 39 Street, New York 18, N. Y. All requests should be made on letterhead.

Pipe Flanges and Fittings, B16—

Sponsors: American Society of Mechanical Engineers; Manufacturers Standardization Society of the Valve and Fittings Industry; Mechanical Contractors Association of America

Reported by R. V. Warrick, MSS, secretary of B16

The committee has begun work on a number of new projects, while maintaining the 24 standards already under its jurisdiction. In addition, a number of changes have recently taken place among the chairmen of subcommittees. No fewer than five of the twelve subcommittees have had new chairmen appointed within the past six months.

Subcommittee 1, devoted to cast iron flanges and flanged fittings, will be chaired by Harry Gaffin, chief engineer of the A. P. Smith Manufacturing Co. The activities of this subcommittee have been augmented by a request for development of requirements for flanges, flanged fittings, and valves made of nodular (ductile) cast iron.

Subcommittee 3, which has charge of B16.5, Steel Pipe Flanges and Flanged Fittings, will be chaired by J. E. Lattan of Taylor Forge & Pipe Works. It is particularly appropriate that Mr Lattan assumes this chairmanship in view of the past work of this committee under the chairmanship of F.S.G. Williams of the same company. This standard is currently being considered for revision and the subcommittee has a full agenda of items for consideration.

Subcommittee 6, under the chairmanship of D. K. Greenwald of Ladish Company, is currently active in the development of standards for cast steel butt-welding fittings. This activity has been undertaken at the request of the ASA Code for Pressure Piping Committee B31.

Subcommittee 7 was disbanded several years ago but now has been reactivated to deal with the problems of gaskets for flanged joints. H. H. Dunkle of the Johns-Manville Corporation has agreed to serve as chairman of this committee. He is well known for his activities in standards work on behalf of the gasket industry.

Subcommittee 8, Marking of Pipe Fittings, will have I. H. Carlson of Crane Co as chairman. Mr Carlson replaces P. G. Schulz within the Crane organization and has already made many contributions to the standards movement.

Subcommittee 11 was another subcommittee temporarily disbanded but now reorganized with a full slate of problems facing it. Chairman of this committee will be John J. Shuk of Jenkins Bros Co who brings to it a long record of achievement in standards work. The original intent of this committee was to handle brass or bronze flanges, flanged fittings, and valves but this has now been expanded to include all nonferrous flanges, flanged fittings, and valves. The committee is charged with the development of standards for these products made of nickel alloys and aluminum, for which ratings were recently developed by Subcommittee 4 and are currently being approved as addenda to B16.5. This latter action is an interim measure until such time as Subcommittee 11 can develop appropriate standards for these materials.

Code for Pressure Piping, B31—

Sponsor: The American Society of Mechanical Engineers

Interpretations submitted by the sponsor.

From time to time certain actions of Sectional Committee B31 are published for the information of interested parties. While these do not constitute formal revision of the Code, they may be utilized in specifications, or otherwise, as representing the considered opinions of the committee.

Pending revision of the Code for Pressure Piping, B31.1-1955, the sectional committee has recommended that ASME, as sponsor, and ASA publish selected interpretations so that industry may take immediate advantage of corresponding proposed revisions. Recently a number of cases concerning piping in nuclear power plants have been approved for publication. These are identified as N-1, N-7, N-8, N-9, and N-10. Cases N-2 and N-6 are not ready for publication at this time, but are currently under review by the Advisory Committee on Nuclear Piping.

Cases N-1 and N-7 are published in this issue. The others will appear in subsequent issues as space permits.

These cases are published as interim action of Sectional Committee B31 on the Code for Pressure Piping that will not constitute a part of the Code until formal action has been taken by ASME and by the American Standards Association on a revision of the Code.

CASE N-1

General Requirements for Nuclear Power Plant Piping

Inquiry: Under what sections of the ASA Code for Pressure Piping should piping in nuclear power plants be designed and constructed? What special requirements must be met?

Reply: It is the opinion of the committee that:

(1) Piping associated with nuclear power plants falls into two categories:

(*a*) Conventional steam and associated service piping, not falling under the definition of nuclear piping [see item (*b*)]. This piping shall be designed and constructed in accordance with B31.1.

(*b*) Nuclear piping which is defined as that piping designed to contain a fluid whose loss from the system could result in a radiation hazard either of the plant personnel or to the general public. Power piping coming within the scope of this definition shall be designed and constructed in accordance with B31.1, supplemented by the rulings and case interpretations identified by the prefix "N."

(2) That specific exclusions and special requirements will be covered in nuclear cases as they are developed. These will be issued and numbered with the prefix "N."

CASE N-7

Austenitic Steels for Aqueous-Type Nuclear Reactor Systems

Inquiry: May types 304, 304L, 316, 316L, 321, 347, 348, 309, and 310

TYPE	304	304L	316	316L	321 347 348	309	310
TEMPERATURE, F							
−20 to 100	18,750	17,500	18,750	17,500	18,750	18,750	18,750
200	16,650	15,300	18,750	16,250	18,750	18,750	18,750
300	15,000	13,100	17,900	14,500	17,000	17,300	18,500
400	13,650	11,000	17,500	12,000	15,800	16,700	18,200
500	12,500	9,700	17,200	11,000	15,200	16,600	17,700
600	11,600	9,000	17,100	10,150	14,900	16,500	17,200
650	11,200	8,750	17,050	9,800	14,850	16,450	16,900
700	10,800	8,500	17,000	9,450	14,800	16,400	16,600
750	10,400	8,300	16,900	9,100	14,700	16,200	16,250
800	10,000	8,100	16,750	8,800	14,550	15,700	15,700

NOTE: These stress values do *not* include joint factors or quality factors.

grades of stainless steel be used for piping of aqueous-type reactors in nuclear energy installations under the rules of Section 1 of the Code for Pressure Piping?

Reply: It is the opinion of the committee that types 304, 304L, 316, 316L, 321, 347, 348, 309, and 310 stainless steels may be used for piping of aqueous-type reactors in nuclear energy installations for construction under Section 1, provided the following conditions are observed:

(1) The materials shall at least conform to one of the following specifications:

Pipe	ASTM A376 A358
Welding fittings	ASTM A403
Forgings	ASTM A182

The minimum carbon content of types 304, 316, 321, 347, 348, 309, and 310 shall be 0.04 to 0.10 percent by check analysis, and the maximum carbon content of types 304L and 316L shall be 0.035 percent by check analysis.

(2) If welding is employed, all completed welds shall be inspected as follows:

(*a*) All longitudinal welds shall be fully radiographed.

(*b*) All circumferential welds shall be fully radiographed.

(*c*) Where the size or configuration of the weld does not permit effective radiographing, it shall be examined by the fluid penetrant method.

(*d*) Provisions (*a*) through (*c*) do not apply for services at or near the ordinary range of atmospheric temperatures, where these materials are employed primarily for their corrosion resistance, provided the piping is hydrostatically tested at 1½ times the maximum allowable working pressure for the piping used.

(3) The design temperature shall not exceed 800 F.

(4) The allowable stress values for seamless materials shall be as shown in the table, page 125.

(5) A joint factor of 1.00 shall be applied to welded construction that has been fully radiographed.

Officers of Sectional Committee B74

F. A. Upper, manager of the technical branch, Bonded Abrasives Division of The Carborundum Company, is chairman of the newly organized Sectional Committee B74. Mr Upper has been with the company since 1923. Since that time he has had broad experience in development, manufacture, and application of abrasives in all forms, bonded, coated, loose abrasives, and diamond products. He has been granted 14 U.S. patents and 30 foreign patents on abrasive products.

Mr Upper is a member of the ASA Standards Council, the Mechanical Standards Board, and a member of Sectional Committee B5 on Small Tools and Machine Tool Elements. He is chairman of the Standardization Committee of the Grinding Wheel Institute.

Allen Wherry, secretary of B74, is vice-president of Thomas Associates, a trade association management firm. He has been with the company since 1952, initially as technical assistant for the Grinding Wheel Institute and Abrasive Grain Association, and later with responsibility for the Steel Door Institute, Cemented Carbide Producers Association, and the Hangar and Industrial Door Technical Council. Mr Wherry has acted as secretary for the industries' standardization committees dealing with grinding wheels, loose abrasives, cemented carbides, and steel doors. He has also served as alternate representative for the Grinding Wheel Institute on ASA's Standards Council and on Sectional Committee B5.

F. A. Upper

Abrasives, B74—

Sponsor: Grinding Wheel Institute

Report by Allen P. Wherry, Secretary of B74

Sectional Committee B74 was officially launched with the organizational meeting held on January 12, 1960. This has created a means by which all segments of the abrasive industry can promulgate standards through one central, nationally recognized body. The committee's scope is:

The development of identification and dimensional standards for bonded, coated, and loose abrasives in the natural and manufactured categories.

Standardization work in the abrasive field has not been dormant over the years, as is exemplified by the various documents published by the ASA, government agencies, industry trade associations, and technical socities, dealing with various phases of abrasive standardization. Men familiar with the standardization activity in the abrasive industry have long felt that a sectional committee devoted solely to standardization in this area was sorely needed.

A. P. Wherry

The organizational structure of Sectional Committee B74 is relatively simple in that it has 14 national trade associations representing manufacturers, users, distributors, and general interest. The initiation of projects and the development of proposals has been delegated to four subcommittees. These are: Subcommittee on Bonded Abrasives, chairman F. A. Upper, Carborundum Company; Subcommittee on Loose Abrasives, chairman W. L. Kenagy, Simonds Abrasive Company; Subcommittee on Diamond Abrasives, chairman L. H. Metzger, Super-Cut, Inc; and Subcommittee on Coated Abrasives, chairman not yet appointed. The sphere of activity of each of the subcommittees has been specifically limited by a detailed scope. The chairmen of the subcommittees have been appointed by the sectional committee and these men have been charged with the responsibility of establishing the membership of their groups and the initiation of work.

Currently, the sectional committee has one proposed before it. This is the Proposed American Standard Shapes and Sizes of Grinding Wheels. This item was discussed at the organizational meeting and is in process of letter ballot.

The Subcommittee on Diamond Abrasives has been activated and charged with the responsibility for developing a Proposed American Standard on Shapes and Sizes of Diamond Grinding Wheels, Hand Hones, Machine Hones, and Mounted Wheels. It has also been requested to study the feasibility of developing a uniform marking system for identifying the physical properties of diamond abrasive wheels.

It is contemplated that the activities of the sectional committee for the immediate future will be devoted to the segregation of all of the published standards presently in existence in the abrasive industry for promulgation as American Standards. Concluding this activity, the sectional committee will undoubtedly devote itself to areas which have not been considered because industry has lacked the vehicle for work in those areas.

Prevention or Control of Hazards to Children, Z66—

Sponsors: American Academy of Pediatrics

A subcommittee, just organized, will study the relative frequency of injuries to children as a result of different types of hazards, as well as the way in which the injuries occur. The subcommittee has been asked to recommend to Committee Z66 any new activities that should be undertaken as a result of its study.

Dr Howard M. Cann, director, National Clearinghouse for Poison Control Centers, U.S. Public Health Service, has been named chairman. Other members are: Dr Marian Crane, Children's Bureau, Department of Health, Education, and Welfare; Philip Dykstra, National Safety Council; and Dr Melvin M. Udel, Metropolitan Life Insurance Company.

PLEASE MAKE THIS CORRECTION!

An error has been noted in the table listing the new prefixes for denoting multiples and sub-multiples of units published on page 58 of the February issue. The abbreviation for milli in the published table is listed as mu and the abbreviation for micro as u. The correct abbreviations of course, are:

milli	m
micro	mu

Does Industry Need a National Standards Agency?

DINNSA

by CYRIL AINSWORTH

IN DISCUSSING THE GROWTH of the American Standards Association, the yearly budget was mentioned as an example. Sufficient income must be received to support this budget. This is a responsibility of American industry and technology. If ASA lacks financial resources to provide the services requested, those turned away will use other avenues to satisfy their standardization needs.

ASA's income comes from two principal sources—memberships and sale of publications. Memberships are of three types. Member-bodies (trade associations, technical societies, and other national groups) are responsible for the administration, policy, and finances of ASA and pay dues of $750 per year for each representative on the Standards Council, with a maximum of three. Associate members, which are similar organizations, may attend Council meetings and have the privilege of the floor but have no vote. They pay dues between $200 and $749 per year. Company members pay dues starting at the minimum of $200 per year. The dues paid by member-bodies and associate members support their membership services but provide little income for basic operations. Company membership provides income for carrying on day-by-day activities.

The sale of American Standards is increasing in volume year by year. Many standards are published by ASA at the request of sponsors and are priced to permit a modest profit. Those purchased from sponsors are obtained at a discount which permits ASA to meet its costs. Every improvement in sales not only assists ASA but also assists sponsors from whom ASA purchases standards to increase sales and income.

Since the technical work under ASA procedure chiefly rests with trade associations, technical societies, governmental agencies, and other national groups, ASA is often asked why individual companies, who participate only through trade associations and technical societies, should be the primary source of financial support. The answer is simple. The primary beneficiary is the company. Technical societies and trade associations operate for the benefit of their members. The representative of a trade association on a sectional committee, for example, is serving on behalf of the members of the association.

A number of trade associations, believing that all their members should share in financially supporting ASA, have arranged group membership. This reduces the cost to the individual companies as group insurance reduces the cost for the individual. ASA benefits through simplified bookkeeping and its financial support is on a wider base.

Standardization is vital to the national economy and coordination at the national level is essential to its success. ASA, as the national coordinating agency, must be provided with financial resources to perform its essential service.

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